The PHOTOFACT Servicer

SET 399 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ APR. 15, 1958

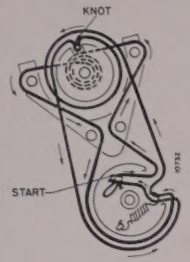
CONTENTS PHOTOFACT SET 399

TRADE NAME AND MODEL	SET AND FOLDER NO.
TELEVISION RECEIVERS	
ARTONE	
17TT61MA, 21TT61MA, 21CT64MA	399-1
PHILCO	
F4210, E, L, X, F4212, L, F4214STM, STN, F4618, L, F4620SL, SM, F4621S, SL, F4622, L, F4624, F4625S, SL, F4628, L, F4630, L, F4632, F4634, L, F4636, L, F6206SL, SM, F6620SL, SM, UC4618, UF4210, E, L, X, UF4212, L, UF4214STM, STN, UF4618, L, UF4620SL, SM, UF4621S, SL, UF4622, L, UF4624, UF4625S, SL, UF4628, L, UF4630, L, UF4632, UF4634, L, UF4636, L, UF6206SL, SM, UF6620SL, SM (Ch. 8L41, B, BU, U, 8L42, U, 8L43, U, 8P51, A, U)	399-2
RCA VICTOR	
21CD8725, U, 21CD8727, U, 21CD8775, U, 21CD8776, U, 21CD8777, U, 21CD8865, U, 21CD8866, U, 21CD8867, U, 21CD8885, U, 21CD8886, U, 21CD8888, U, 21CD8906, U, 21CD8907, U, 21CD8926, U, 21CD8927, U, 21CD8949, U (Ch. CTC7A, B, C, D, E, F) Color	399-3
PRODUCTION CHANGE BULLETIN	
MOTOROLA Television Rec.	
Chassis TS-423, A, Y, TTS-423, Y, VTS-423, Y, WTS-423, Y	399-4
TRAV-LER Television Rec.	
617-33U, -34U, 621-30U, -31U, -32U, -74U, -75U (Ch. 628A6)	399-4
OTHER EQUIPMENT	
BELL SOUND	
5615	399-5
FORD	
74BF (FEG-18805), 84BF (B8A-18805-B)	399-6
GLASER-STEERS (Record Changer)	
GS-77, GE, GED	399-7
MAGNAVOX	
Chassis AMP-166AA	399-8
PACEMAKER	
2285	399-9
PHONOLA	
1057, 1057W	399-10
RCA VICTOR	
91NT1, 91NT2 (Ch. RC-1172)	399-11
TELEFUNKEN	
"Gavotte 7"	399-12
TONFUNK	
7046M	399-13
TRUETONE	
D5770B, D5771B, D5772B, D5773B	399-14

The service information in this Servicer provides data on models which we have been unable to present in PHOTOFACT Folders. The receivers are not in current production; a requirement for PHOTOFACT coverage, and we are therefore presenting schematics and supplementary data that will be of assistance when servicing these models.

ADMIRAL CHASSIS 20AZ4EF (STAMPED RUN 16)
CHASSIS 20SZ4EF

SCHEMATIC DIAGRAM COURTESY ADMIRAL CORP.



RE-STRINGING TUNING DRIVE

To restring Tuning Drive refer to Tuning Drive Stringing Diagram. Note position of starting point as indicated by arrows. Start with approximately 36 inches of cord to allow for final tying.

Actual cord needed is 28¼ inches.

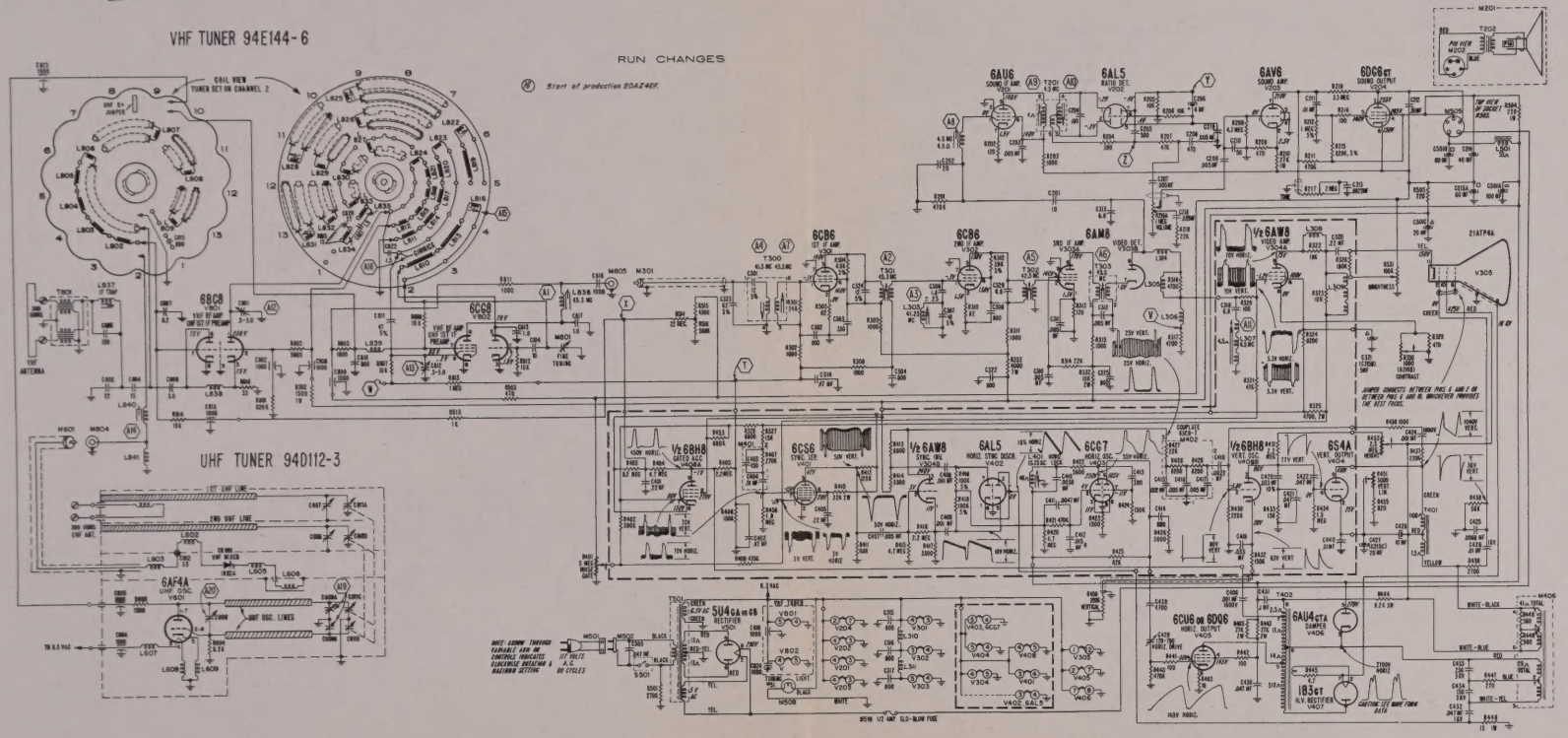
IMPORTANT: DO NOT TURN LONG METAL SHAFT ON FINE TUNING BEYOND THE RANGE OF THE FINE TUNING ROTOR.

VHF TUNER 94E144-6

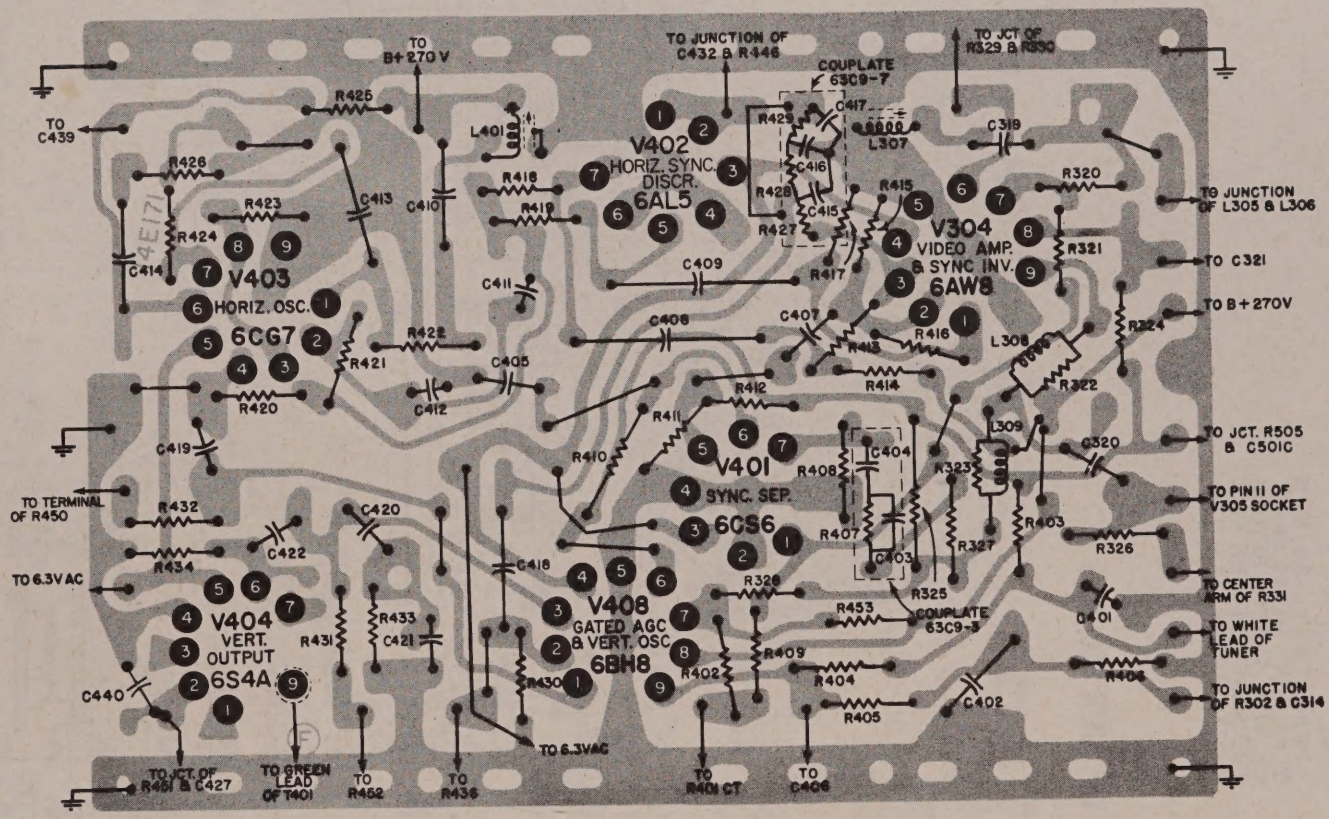
RUN CHANGES

Start of production 20AZ4EF.

UHF TUNER 94D112-3

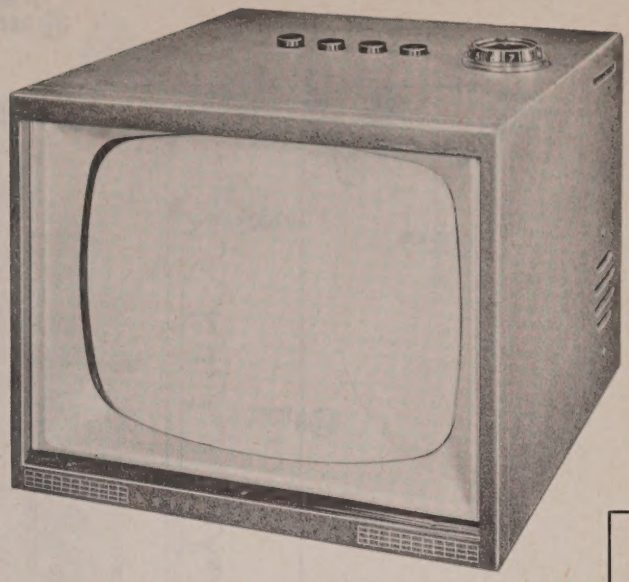


PRINTED BOARD



View of PRINTED WIRING SIDE of Sync Board, A5298. Gray Area represents printed wiring; black symbols and lines represent components and connections on opposite side.

ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA



DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 6 push-on type knobs from top panel of cabinet.
2. Remove 3 wood screws and 1 metal screw holding the rear cover. Remove rear cover.
3. Remove 2 wood screws holding AC interlock-antenna terminal bracket.
4. Remove speaker leads, picture tube socket, ion trap and yoke bracket sleeve.
5. Remove 1 wood screw at the top rear of cabinet (holding chassis to cabinet).
6. Remove 2 wing nuts. Remove speaker.
7. Remove 5 wood screws holding front half bottom board of cabinet, and remove HV lead.
8. Remove 2 chassis bolts. Remove chassis.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS
Care should be exercised when connecting test equipment or physically contacting the chassis.

TRADE NAME	Artone MODELS 17TT61MA, 21TT61MA, 21CT64MA
SUPPLIER	Affiliated Retailers, 855 Ave. of America, New York, N.Y.
TYPE SET	Television Receiver
TUBES	Thirteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 150 Watts, 1.2 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. One slug for HIGH band adjustment is located at 1 o'clock, and should be adjusted first. The LOW band adjustment is located at 6 o'clock. Adjust for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 3 wood screws holding plastic molding at the bottom edge of the safety glass. Tilt glass out at the bottom and lower to remove.

FOCUS

Adjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator, it is necessary to remove the rear cover and supply power to set. Set the horizontal hold at the center of its range and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. (For location, see tube placement chart).

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate audio detector buzz, adjust the buzz control for MINIMUM buzz and maximum sound. (For location, see tube placement chart).

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

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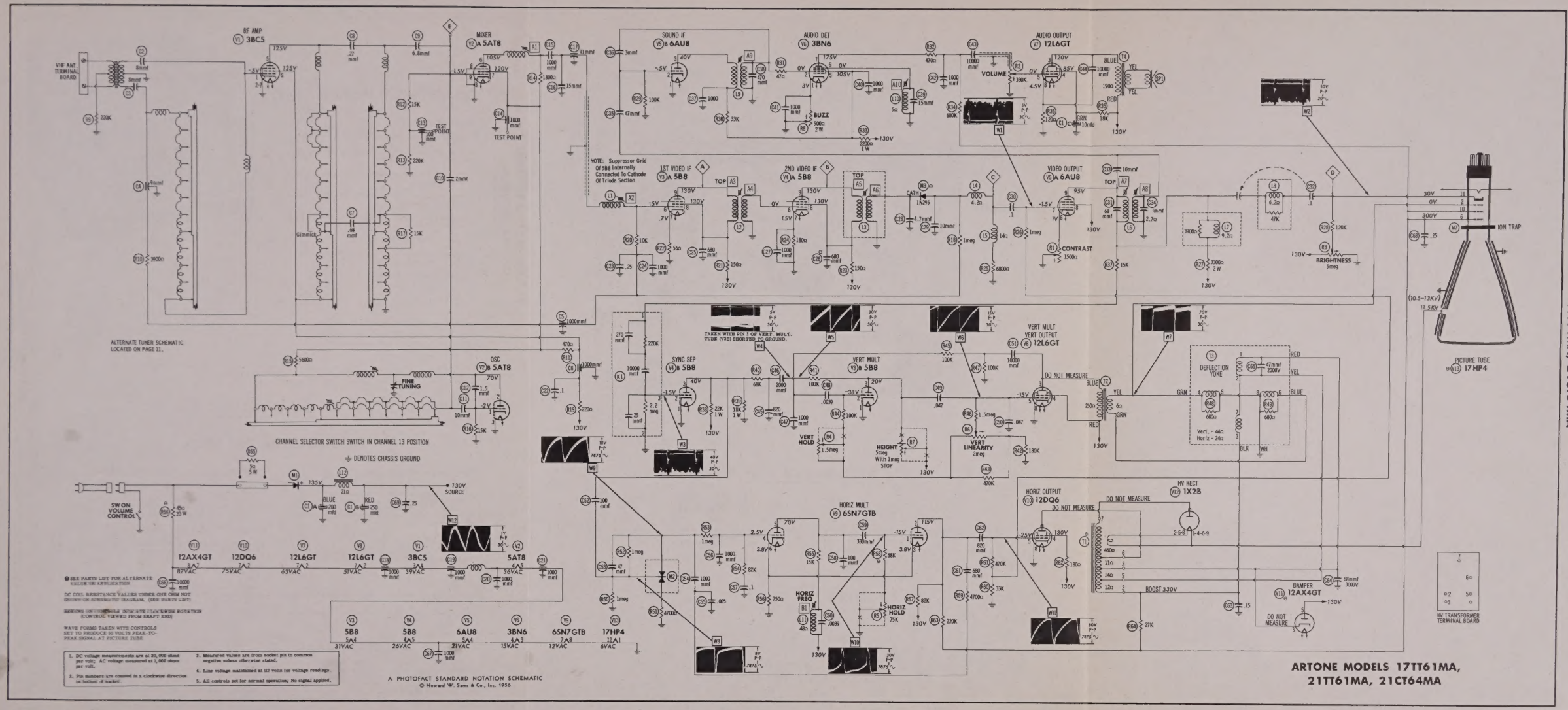
SET 399 FOLDER 1
ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA
ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA
SET 399 FOLDER 1


RF AMP V1 3BC5
MIXER V2 A 5AT8
SOUND IF V5 B 6AU8
AUDIO DET V6 3BN6
AUDIO OUTPUT V7 12L6GT
VOLUME
1ST VIDEO IF V3 A 5B8
2ND VIDEO IF V4 A 5B8
VIDEO OUTPUT V5 A 6AU8
CONTRAST
BRIGHTNESS
ION TRAP
PICTURE TUBE V13 17HP4
VHF ANT TERMINAL BOARD
ALTERNATE TUNER SCHEMATIC LOCATED ON PAGE 11.
OSC V2 B 5AT8
FINE TUNING
CHANNEL SELECTOR SWITCH SWITCH IN CHANNEL 13 POSITION
DENOTES CHASSIS GROUND
SYNC SEP V4 B 5B8
VERT MULT V3 B 5B8
VERT MULT VERT OUTPUT V11 12L6GT
VERT HOLD
HEIGHT
VERT LINEARITY
DEFLECTION YOKE
HORIZ MULT V9 6SN7GTB
HORIZ OUTPUT V10 12DQ6
HV RECT V12 1X2B
HORIZ FREQ
HORIZ HOLD
DAMPER V11 12AX4GT
BOOST 330V
DO NOT MEASURE
SW ON VOLUME CONTROL
130V SOURCE
12AX4GT 2A7 87VAC
12DQ6 7A7 75VAC
12L6GT 7A7 63VAC
12L6GT 7A7 51VAC
3BC5 3A6 39VAC
5AT8 6A5 36VAC
5B8 5A6 31VAC
5B8 5A5 26VAC
6AU8 5A8 21VAC
3BN6 6A3 15VAC
6SN7GTB 7A8 12VAC
17HP4 12A1 6VAC
HV TRANSFORMER TERMINAL BOARD
NOTE: Suppressor Grid Of 5B8 Internally Connected To Cathode Of Triode Section
TAKEN WITH PIN 3 OF VERT. MULT. TUBE (V3B) SHORTED TO GROUND.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM. (SEE PARTS LIST)
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVE FORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE
1. DC voltage measurements are at 20,000 ohms per volt; AC voltage measured at 1,000 ohms per volt.
2. Pin numbers are counted in a clockwise direction as bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; No signal applied.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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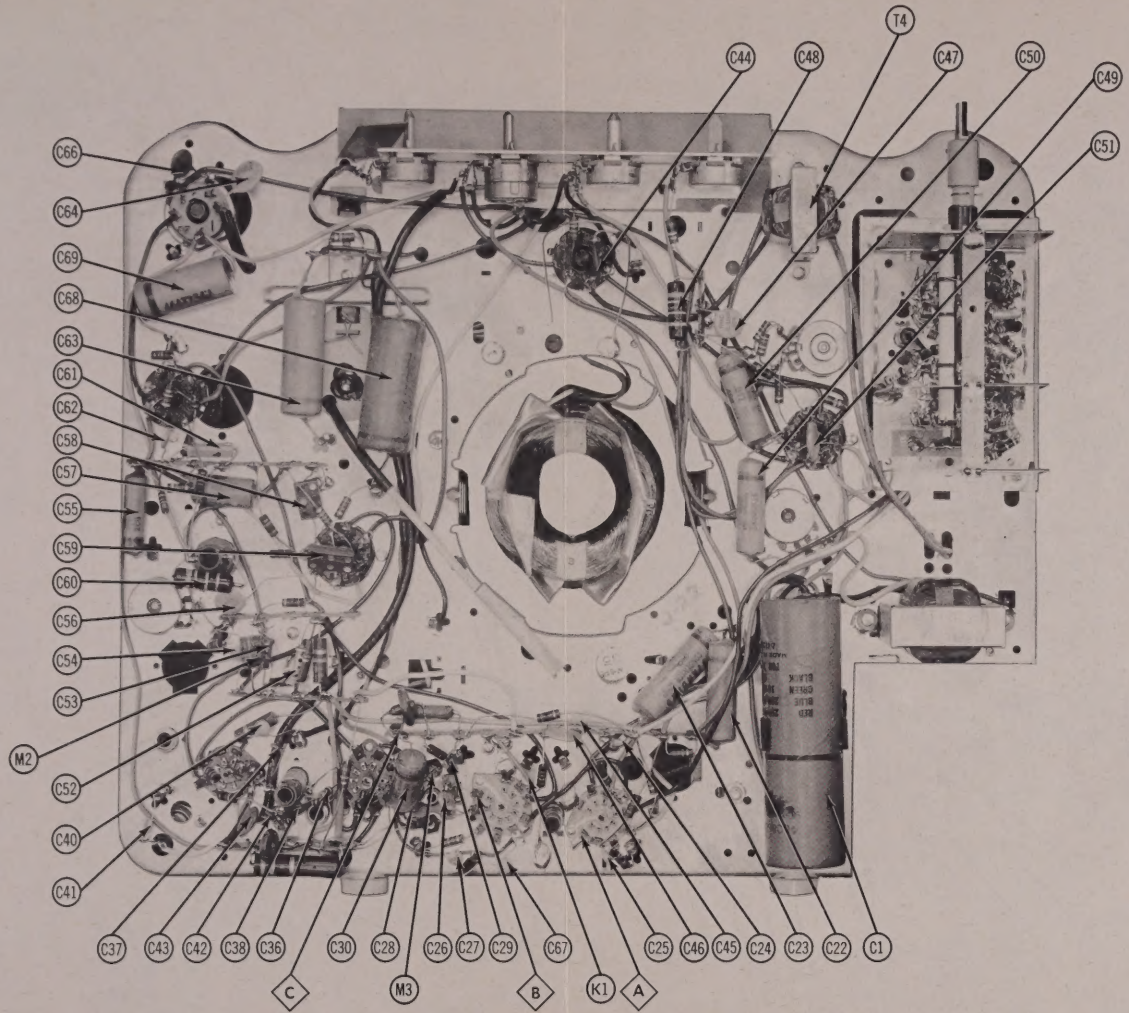
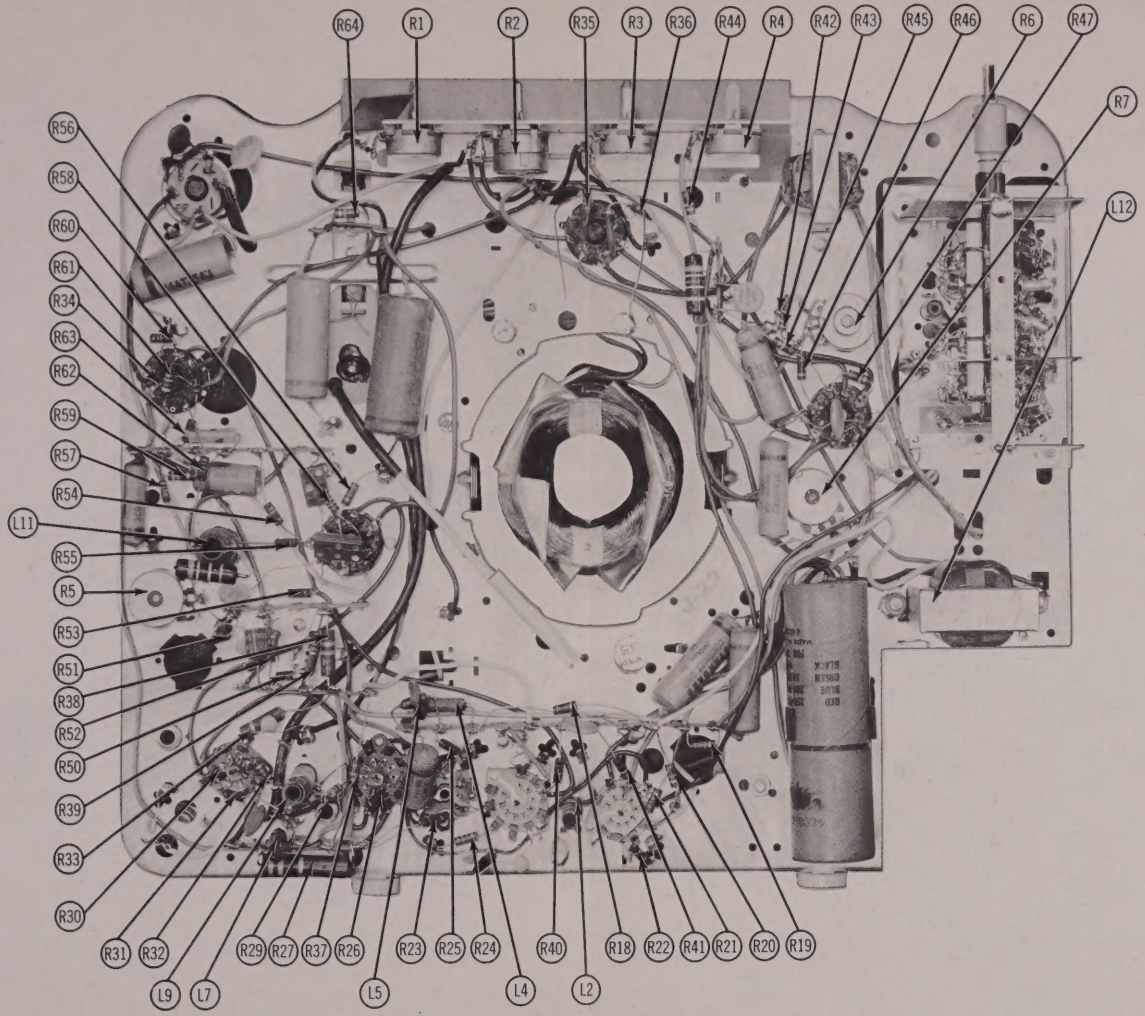
ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA

ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA

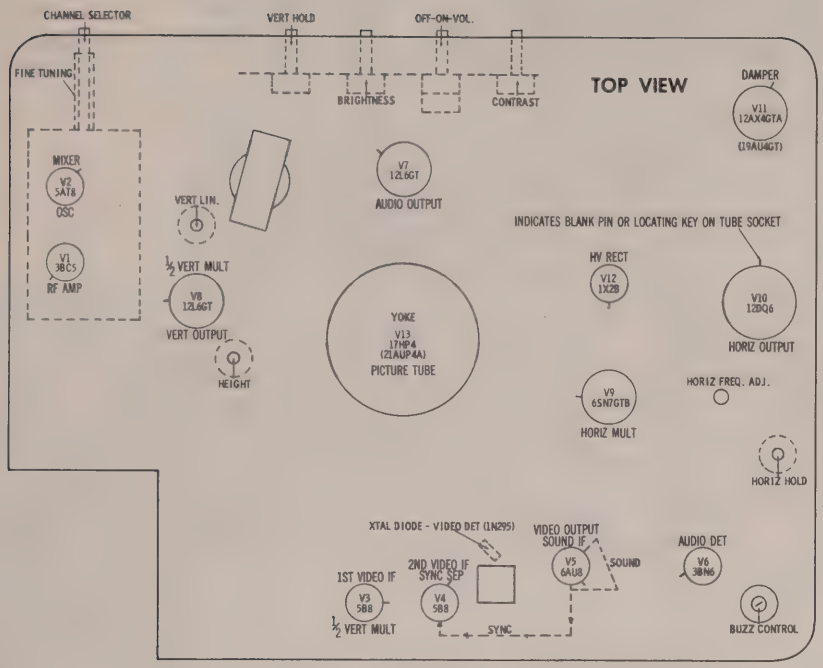


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

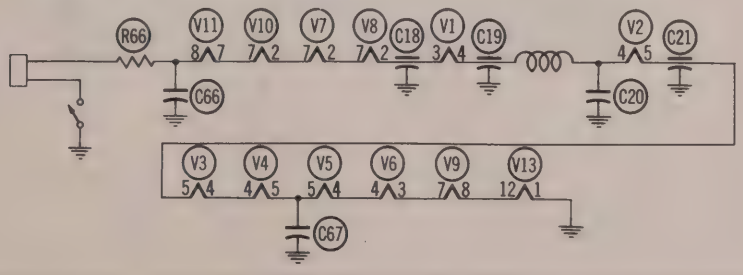
POWER SUPPLY FAILURE
No raster, no sound - Selenium Rectifier (M1)

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - V2, V3, V4, V5
No pic, no sound, has snow - V1, V2, V3
No pic, has sound, has raster - V5, V13
Has pic, no sound - V5, V6, V7

SYNC FAILURE
No vert. sync - V3, V4, V8
No horiz. sync - V4, V9
No vert. or horiz. sync - V4

SWEEP FAILURE
No raster, has sound - V9, V10, V11, V12, V13
No vertical deflection - V3, V8
Poor vert. linearity or foldover - V3, V8
Poor horiz. linearity or foldover - V9, V10, V11
Narrow picture - V9, V10, V11, V12, M1
Vert. off freq. - V3, V4, V8
Horiz. off freq. - V4, V9

NOTE: Since this receiver employs tubes used in a series filament network, an open filament in any tube in series will cause the set to be inoperative. (See circuit below).



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped away from the chassis.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to the ungrounded side of C23. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to floating tube shield over converter tube.	44. 25MC (10MC Swp)	42. 75MC 45. 75MC	Any unused channel.	Vert. amp. thru detector (Fig. 1) to point Ⓐ. Low side to chassis.	A1, A2	Adjust for response curve similar to Fig. 2 with markers in proper positions.
2.	1000MMF	High side to pin 6 (grid) of 5B8 (V3). Low side to chassis.	"	"	"	Vert. amp. thru detector (Fig. 1) to point Ⓑ. Low side to chassis.	A3, A4	"
3.	"	High side to pin 6 (grid) of 5B8 (V4). Low side to chassis.	"	"	"	Vert. amp. to point Ⓒ. Low side to chassis.	A5, A6	"
4.	"	High side to point Ⓔ. Low side to chassis.	"	"	"	"		Retouch A1 thru A6 as needed to obtain response curve on scope similar to Fig. 3.

SOUND IF ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
Set volume control for normal volume.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	.001MFD	High side to pin 9 (plate) of 6AU8 (V5A). Low side to chassis.	4. 5MC (400∿ Mod.) (50KC Swp)	4. 5MC (400∿ Mod)	Any unused channel.	Across secondary of audio output trans. (T4).	A10	Set buzz control (R8) 90° from its maximum clockwise rotation. Adjust A10 for maximum 400∿ indication on scope.
6.	"	"	"	"	"	"	A7, A8, A9	Attenuate generator output so that signal level is below limiting level of the 6BN6 as evidenced by background hiss and noise. Adjust A7, A8 and A9 for maximum response on scope.
7.	"	"	Not Used	4. 5MC (400∿ Mod)	"	"	R8	Use high signal generator output and adjust R8 for MINIMUM 400∿ indication on scope.
8.	"	"	4. 5MC (400∿ Mod.) (50KC Swp)	4. 5MC	"	"	A10	With volume control at low level retouch A10 for maximum 400∿ indication on scope. Remove test equipment. Connect antenna and tune in weakest TV station in that area and retouch R8 for MINIMUM buzz and hiss. Tune in strongest TV station and adjust A10 for clearest sound.

OSCILLATOR ALIGNMENT

The oscillator section of this receiver has been properly aligned at the factory and is very stable. Alignment of this portion of the receiver should not be necessary in the field.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion of the receiver should not be necessary in the field.

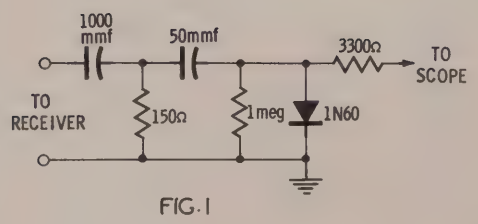


FIG. 1

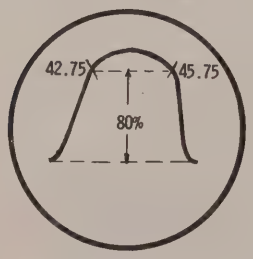


FIG. 2

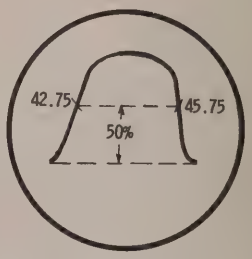
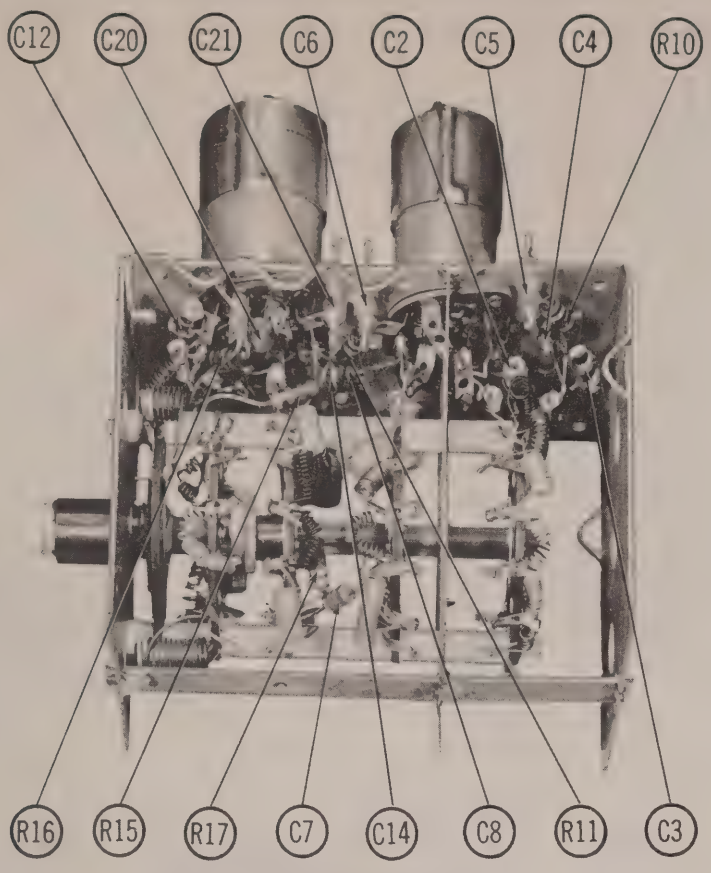
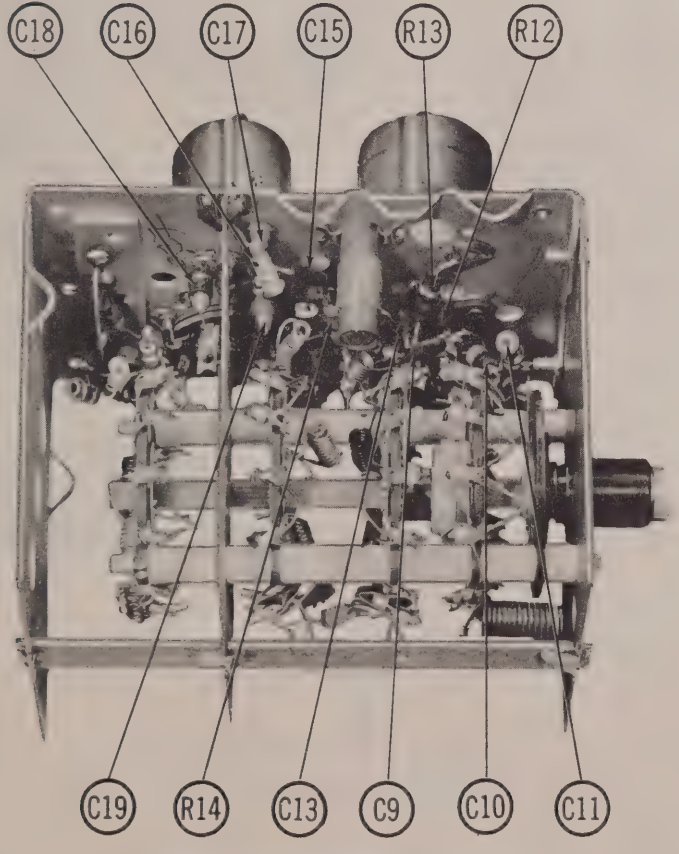


FIG. 3



RF TUNER-RIGHT SIDE

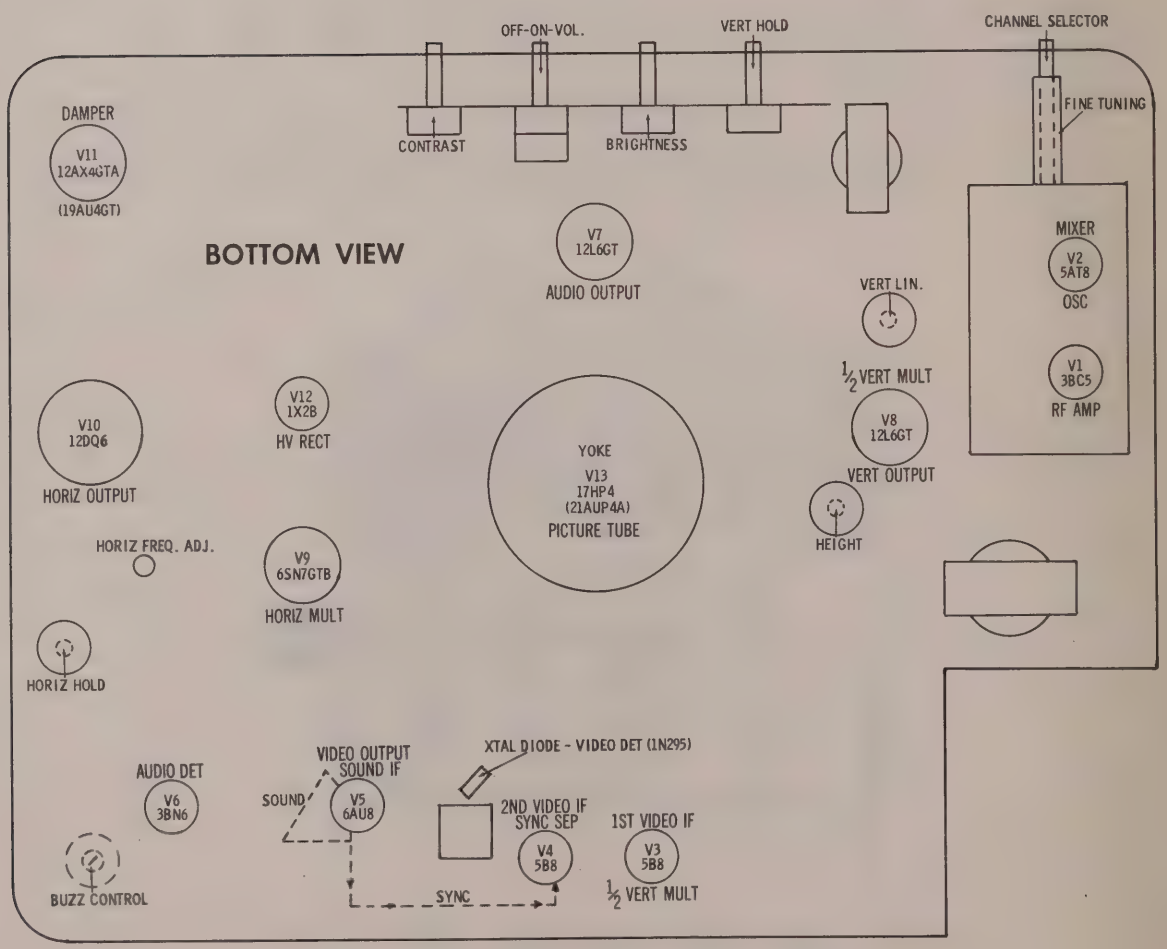


RF TUNER-LEFT SIDE

RESISTANCE MEASUREMENTS

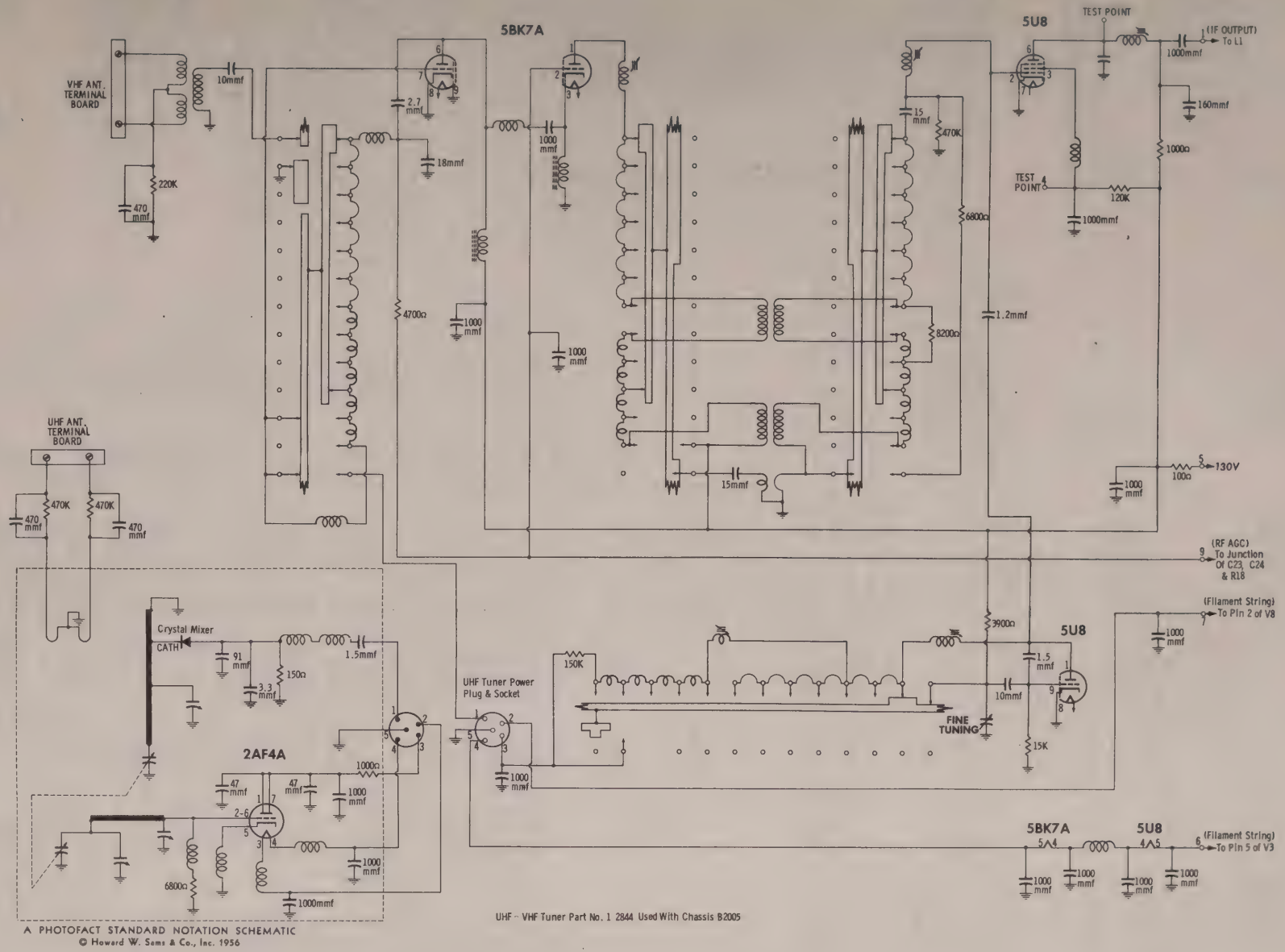
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	9Ω	8Ω	†240Ω	†240Ω	0Ω		
V2	5AT8	15K	†6000Ω	0Ω	8Ω	7Ω	†2500Ω	†700Ω	0Ω	235K
V3	5B8	0Ω	• 1Meg	• †2Meg	6Ω	7Ω	1Meg	56Ω	†170Ω	†170Ω
V4	5B8	0Ω	2.2Meg	†18K	6Ω	5Ω	.1Ω	180Ω	†170Ω	†170Ω
V5	6AU8	0Ω	100K	†35K	4Ω	5Ω	• 70Ω	1Meg	†21Ω	†3300Ω
V6	3BN6	• 250Ω	47Ω	3Ω	4Ω	†2200Ω	5Ω	†700K		
V7	12L6GT	NC	13Ω	†210Ω	†18K	• 160K	NC	15Ω	120Ω	
V8	12L6GT	TP	9Ω	†270Ω	†21Ω	• 2Meg	TP	13Ω	0Ω	
V9	6SN7GTB	• 80K	†82K	750Ω	2Meg	†15K	750Ω	3Ω	2Ω	
V10	12DQ6	TP	15Ω	TP	†200Ω	500K	TP	18Ω	0Ω	TOP CAP *11Ω
V11	12AX4GT	NC	NC	300K	NC	†21Ω	NC	18Ω	20Ω	
V12	1X2B		PINS	1 - 8	HAVE	INF	RESISTANCE			TOP CAP *470Ω
V13	17HP4	0Ω	11Ω	PIN 6 *27K	PIN 10 *27K	PIN 11 • †750K	PIN 12 2Ω			

† MEASURED FROM OUTPUT OF M1.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
* MEASURED FROM PIN 3 OF V11.
TP TIE POINT
NC NO CONNECTION.



TUBE PLACEMENT CHART

CHASSIS TOP VIEW



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UHF - VHF Tuner Part No. 1 2844 Used With Chassis B2005

ALTERNATE VHF-UHF TUNER SCHEMATIC

ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	2BC5	
V2	Mixer-Oscillator	5AT8	
V3	1st. Video IF Amplifier-Vert. Mult.	5B8	
V4	2nd. Video IF Amplifier-Sync Separator	5B8	
V5	Video Output-Sound IF Amplifier	6AU8	
V6	Audio Detector	3BN8	
V7	Audio Output	13L8GT	
V8	Vert Mult -Vert. Output	13L8GT	
V9	Horiz. Mult.	6BN7GTB	
V10	Horiz. Output	12DQ6	
V11	Damper	1AX4GT	Note 1
V12	HV Rectifier	1X2B	

Note 1. 1AU4GT may be used in some versions.

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: ARTONE PART No	GENERAL ELECTRIC PART No	SYLVANIA PART No	NOTES
V13	17HP4	17HP4/17HP4	17HP4/	① [illegible] ② Silver screen "85"
	21AUP4A ①		21AUP4A ② 21AUP4A/B ①	21AUP4A/B ②

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	RATING: VOLT.	REPLACEMENT DATA: ARTONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	200	150	45-325	[illegible]		WT250	CDB-T-2025	D-090	R2213 *
B	250	164						[illegible]	
C	10	150							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING: CAP	RATING: VOLT	REPLACEMENT DATA: ARTONE PART No	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	8					Z015				
C3	8					Z015				
C4	9									
C5	1000									
C6	1000									
C7	.68				TCZ-R68	TZ03	TCO-.68			
C8	.27									
C9	6.5			NPO-D18.8	TCZ-6R8	Z013	TCO-6.8	ZT-5568	5TCCB-V68	
C10	3					Z005				
C11	10			NPO-S10	TCZ-10	TZ09	TCO-10	ZT-541	5TCC-Q1	
C12	1.5									
C13	100									
C14	1000									
C15	1000			DI-001	DD-102	G069	ED-1000	UC-521	5GA-D1	
C16	15			NPO-S15	TCZ-15	TZ11	TCO-15		5TCC-Q15	
C17	91									
C18	1000									
C19	1000									
C20	1000			BPD-001	[illegible]	K069	ED-.001	DC-521	5HK-D1	
C21	1000									
C22	.1	200	46AU104J	P288N-1	[illegible]	CUB2P1		PT401	2TM-P1	
C23	.25	200	46A7254J	P288N-25		CUB2P25		PT4025	2TM-P25	
C24	1000		47A330	BPD-001	[illegible]	K069	ED-.001	DC-521	5HK-D1	
C25	680		47A832A	1469-00068	[illegible]	IR5T68	ED-680		[illegible]	
C26	680		47A832A	1469-00068	D6-681	IR5T68	ED-680		[illegible]	Note 1
C27	1000		47A330	BPD-001	[illegible]	K069	ED-001	DC-521	5HK-D1	
C28	4.7		47B403-S	NPO-S14.7	TCZ-4.7	TZ07	TCO-4.7	ZT-5447	5TCCB-V47	
C29	10		47CA30A100K	NPO-S10	TCZ-10	TZ09	TCO-10	ZT-541	5TCC-Q1	
C30	.1	150	46A343	P288N-1	[illegible]	CUB2P1		PT401	2TM-P1	
C31	68		47B479							
C32	.1	200	46AU104J	P288N-1	DF-104	CUB2P1		PT401	[illegible]	
C33	10		47A160-L1	NPO-S10	TCZ-10	TZ09	TCO-10	ZT-541	5TCC-Q1	
C34	33		47B478							
C35	47		47CA30A470M	S147	D6-470	TP39	GP-47	UC-5447	5GA-Q47	
C36	3		[illegible]	NPO-S13.3	[illegible]	Z007	TCO-3	ZT-553	5TCCB-V33	
C37	1000		47A330	BPD-001	DD-102	K069	ED-.001	DC-521	5HK-D1	
C38	470	500		D6-471	S15T47	ED-470			MS-347	
C39	.15		[illegible]							
C40	1000		47A330	BPD-001	[illegible]	K069	ED-.001	DC-521	[illegible]	
C41	1000		47A330	BPD-001	DD-102	K069	ED-.001	DC-521	5HK-D1	
C42	1000		[illegible]	BPD-001	[illegible]	K069	ED-.001	DC-521	5HK-D1	
C43	10000		47A334	BPD-01	[illegible]	K083	ED-.01	DC-511	[illegible]	
C44	10000		47A334	BPD-01	DD-103	K083	ED-.01	DC-511	[illegible]	
C45	330		[illegible]	[illegible]	D6-331	G067	ED-330		5GA-T32	
C46	3000		47A395	DI-003	TP56	GP-3000		UC-522	5GA-D35	
C47	1000		[illegible]	DI-001	[illegible]	G069	ED-1000	UC-521	5GA-D1	
C48	.0032	400	46HR325K4	1464-0039		IR5D39		MS-339	4TM-S47	
C49	.047	400	[illegible]	BPD-05	DF-503	CUB4S47		PT4147	4TM-S47	
C50	.047	400	[illegible]	BPD-05	[illegible]	CUB4S47		PT4147	4TM-S47	
C51	10000		47-605	DI-01	DD-103	TP47	GP-10000	MC478	[illegible]	
C52	100		47CA30A101M	N750-S100	[illegible]	TM32	TCT-100	NT-531	5TCU-T1	
C53	47		47CA30A470M	S147	D6-470	TP39	GP-47	UC-5447	5GA-Q47	
C54	1000		47A330	DI-001	[illegible]	G069	ED-1000	UC-521	5GA-D1	
C55	.005	300	46A1502E	BPD-005	[illegible]	[illegible]	CUB4D5	GP-5000	PT525	6TM-D5
C56	1000		47A330	1464-001		IR5D1		ED-1000	MC5210	[illegible]
C57	.1	150		P288N-1	DF-104	CUB2P1			PT401	2TM-P1
C58	100	500	47X30B101K	NPO-S100	D6-101	1R5T1	KD-100		MC5235	[illegible]
C59	330	500	[illegible]	1464-0033	D6-331	1R5T33	KD-330			[illegible]
C60	.0039	400	[illegible]	1464-0039		IR5D39				[illegible]
C61	680	500	47X30B681K	1464-00068	D6-681	1R5T68	KD-680			[illegible]
C62	820		[illegible]	1464-00082		5R5T82	KD-820			[illegible]
C63	.15	600	46AX1547	P288N-15		[illegible]			PT4015	2TM-P15
C64	68	3000	47B473	HVD-30-68	DD30-680	W3G68	KEV-680		DC5G68	30CA-Q68
C65	[illegible]	3000	47-439	HVD-30-47	DD30-470	V3Q47	3KV-470		DC5G47	30CA-Q47
C66	10000		47A334	BPD-01	DD-103	K083	KD-.01	DC-511	[illegible]	[illegible]
C67	1000		47A330	BPD-001	DD-102	K069	KD-.001	DC-521	5HK-D1	
C68	.25	600	[illegible]	P688N-25		CUB6P25			[illegible]	[illegible]
C69	.25	300	46A7254J	P288N-25		CUB2P25			PT4025	[illegible]

Note 1. Early versions use 390MMF in this application.

CONTROLS

ITEM No	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: ARTONE PART No	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No	MALLORY PART No	INSTALLATION NOTES
R1A	1500Ω	½	25B1023	AB-515		Q1T-109	U-8	Contrast
B	Shaft		Not Req.	AK-3		Not Req.	Not Req.	Attach to R1A
R2A	220K	½	25B1021	B-40-8	A47-500K-E	Q1J-123	TA334A	Volume
B	Shaft		Not Req.	Not Req.	PS-3	Not Req.	Not Req.	Attach to R2A
C	Switch		Not Req.	Not Req.	SWK-13	76-1	UB-38	Attach to R2A
R3	5Meg	½	25B1254			Q1T-141	TA56R	Brightness
R4A	1.5Meg	½	25B1256	AB-742	A47-1.5Meg	Q1J-129	TA185L	Vert. Hold
B	Shaft		Not Req.	AK-3	PS-3 -3	Not Req.	Not Req.	Attach to R4A
R5A	75K	½	25B1305	AB-335	A47-75K-S	Q1J-125	PTA191.	[illegible]
B	Shaft		Not Req.	AK-4	[illegible]	Not Req.	Not Req.	Attach to R5A
R6A	2Meg	½	25B1255	AB-75	A47-2Meg-S	Q1J-131	PTA38L	Vert. Linearity
B	Shaft		Not Req.	AK-4	KBS-3	Not Req.	Not Req.	Attach to R6A
R7A	5Meg with 1Meg stop	½	25B1098	aAB-86	aA47-4Meg	aQ1J-141	aPTA385L	Height
B	Shaft		Not Req.	AK-18	RK-3	TQ	Not Req.	Attach to R7A
R8	500Ω	2	25A1096		2B-500		FL-490	Brass-wire wound

* Connect a 1Meg resistor in series with the left hand terminal of the control and the lead connecting to the same terminal of the original control. (Control is viewed from shaft end, terminals down).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARTONE PART No.		NOTES
R9	330K				
R10	3900Ω				
R11	470Ω				
R12	15K				
R13	220K				
R14	1800Ω				
R15	5600Ω				
R16	15K				
R17	15K				
R18	1Meg		33X30X105K		
R19	220Ω		[illegible]		
R20	10K		33X30X103K		
R21	150Ω		33X30X151K		
R22	56Ω		33X20X560K		
R23	150Ω		33X30X151K		
R24	180Ω		33X30X181K		
R25	6800Ω		33X20X682K		
R26	1Meg		33X30X105K		
R27	330Ω	3	33X40X332K		
R28	120K		33X30X124K		
R29	100K		33X20X104K		
R30	33K		33X20X333K		
R31	47Ω		33X20X470K		
R32	470Ω		33X30X471K		
R33	2200Ω	1	33X30X222K		
R34	680K		33X20X684K		
R35	18K		[illegible]		
R36	120Ω		33X20X121K		
R37	15K		33X20X153K		

ITEM No.	RATING: OHMS	RATING: WATT	REPLACEMENT DATA: ARTONE PART No.		NOTES
R38	22K	1	33X30X223K		
R39	18K	1	33X30X183K		
R40	68Ω		33X20X680K		
R41	100K		33X20X104K		
R42	180K		33X20X184K		
R43	470K		[illegible]		
R44	100K		[illegible]		
R45	100K		33X20X104K		
R46	1.5Meg		[illegible]		
R47	100K		[illegible]		
R48	680Ω		[illegible]		
R49	680Ω		33X20X681K		
R50	1Meg		[illegible]		
R51	470Ω		[illegible]		
R52	1Meg		[illegible]		
R53	1Meg		[illegible]		
R54	82K		33X20X823K		
R55	15K		33X20X153K		
R56	750Ω 5%		33X30X751J		
R57	82K 5%		[illegible]		
R58	68K		[illegible]		Note 1
R59	4700Ω		33X20X472K		
R60	33K		[illegible]		
R61	470K		[illegible]		
R62	180Ω		[illegible]		
R63	220K		[illegible]		
R64	27K		33X30X273K		
R65	5Ω	5	24-1073		
R66	45Ω	20	24B1048		Note 3

Note 1. Some models use a 82K in this application.
Note 2. Chassis A2005 uses a 450Ω in this application.
Chassis B2005 uses a 40Ω in this application.
Chassis C2005 uses a 35Ω in this application.
Chassis D2005 uses a 30Ω in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: ARTONE PART No.	Hallodorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Horiz. Output Trans.	55D285 ①							
T2	Horiz. Output Trans.	[illegible]	21900 ①	A-2823 ②		A-8113	26873 ①	A-108X ④	
T3A	Yoke-Horiz. (20MH)	53-3711 ⑤	DF606 ⑥	MDF-73 ⑥	V307 ④ T70P30/43 ⑥	DY-11A ⑥	Y-10 ⑥	Y-19-1 ⑥	
B	Vert. (42MH)								

① Used in chassis A2005 and B2005.
② Used in chassis C2005 and D2005.
③ Use 7 to 1 turns ratio.
④ Drill new mounting hole(s).
⑤ Includes capacitor C65, resistors R48 and R49.
⑥ Use original yoke damping network.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: ARTONE PART No.	Hallodorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	2.35K	3-4Ω	56C292		Z1301	A-3326	A-3333	26858 ①	S-12X ① Drill one new mounting hole.

SPEAKER

ITEM No.	RATINGS: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: ARTONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	85C175A	4A07	

COILS (RF-IF)

ITEM No.	USE	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: ARTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	1st. Video IF	0Ω		51-2104			TV-131	6336
L2	2nd. Video IF	.1Ω	.1Ω	51-2105				
L3	3rd. Video IF	.1Ω	.1Ω	[illegible]				
L4	Series Peaking Coil	4.2Ω		53A307	19-1006		4634	18 Microhenries
L5	Shunt Peaking Coil	.14Ω		51-2103	[illegible]		6148	710 Microhenries
L6A	4.5MC Trap	.9Ω		51B1998				
B	1st.Sound IF	2.7Ω						
L7	Shunt Peaking Coil	2.2Ω		51-2101	19-6400 *		6134 *	396 Microhenries, wound on 3900Ω resistor
L8	Series Peaking Coil	6.2Ω		51-2100	19-3180 ■	TV-184 ■	6180 ■	186 Microhenries, wound 47K resistor
L9	2nd. Sound IF	.1Ω	.4Ω	[illegible]				
L10	Quadrature Coil	5Ω		51A1997			1460	

* Parallel with 3900Ω resistor.
■ Parallel with 47K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.: PRI.	DC RES.: SEC.	REPLACEMENT DATA: ARTONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No	[illegible] PART No.	Thordarson PART No	NOTES
L11	46Ω		51B2109	19-1576	TV-163	6210		[illegible]	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	RATINGS: D.C. RESISTANCE	RATINGS: INDUCTANCE (D CURRENT 1000 %)	REPLACEMENT DATA: ARTONE PART No	Hallodorson PART No.	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No
L12	.260A	21Ω	.8H	56B234	C6040		C-2337	28C41	C-23X

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	ARTONE PART No.	REPLACEMENT DATA	
K1	Sync Coupler	220K, 3.2Meg, 270MMF, 10000 MMF, 25MMF	[illegible]	Aerovox	PA-533
				Centralab	PC-263
				Cornell-Dubilier	[illegible]
				[illegible]	ST-3

SELENIUM RECTIFIER

ITEM No.	RATING: CURRENT	REPLACEMENT DATA: ARTONE PART No.	FEDERAL PART No	INTERNATIONAL PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M1	.260A	27A218	1236A	MR300	5Q4	300	1 Used

SELENIUM DIODE

ITEM No	RATING: CURRENT	REPLACEMENT DATA: ARTONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	NOTES
M2		27-236	1315 ①	1T1 ①			① Two required

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: ARTONE PART No.	SYLVANIA PART No.	NOTES
M3	1N295 *	19C1864	1N80	Video Detector (Pigtail)

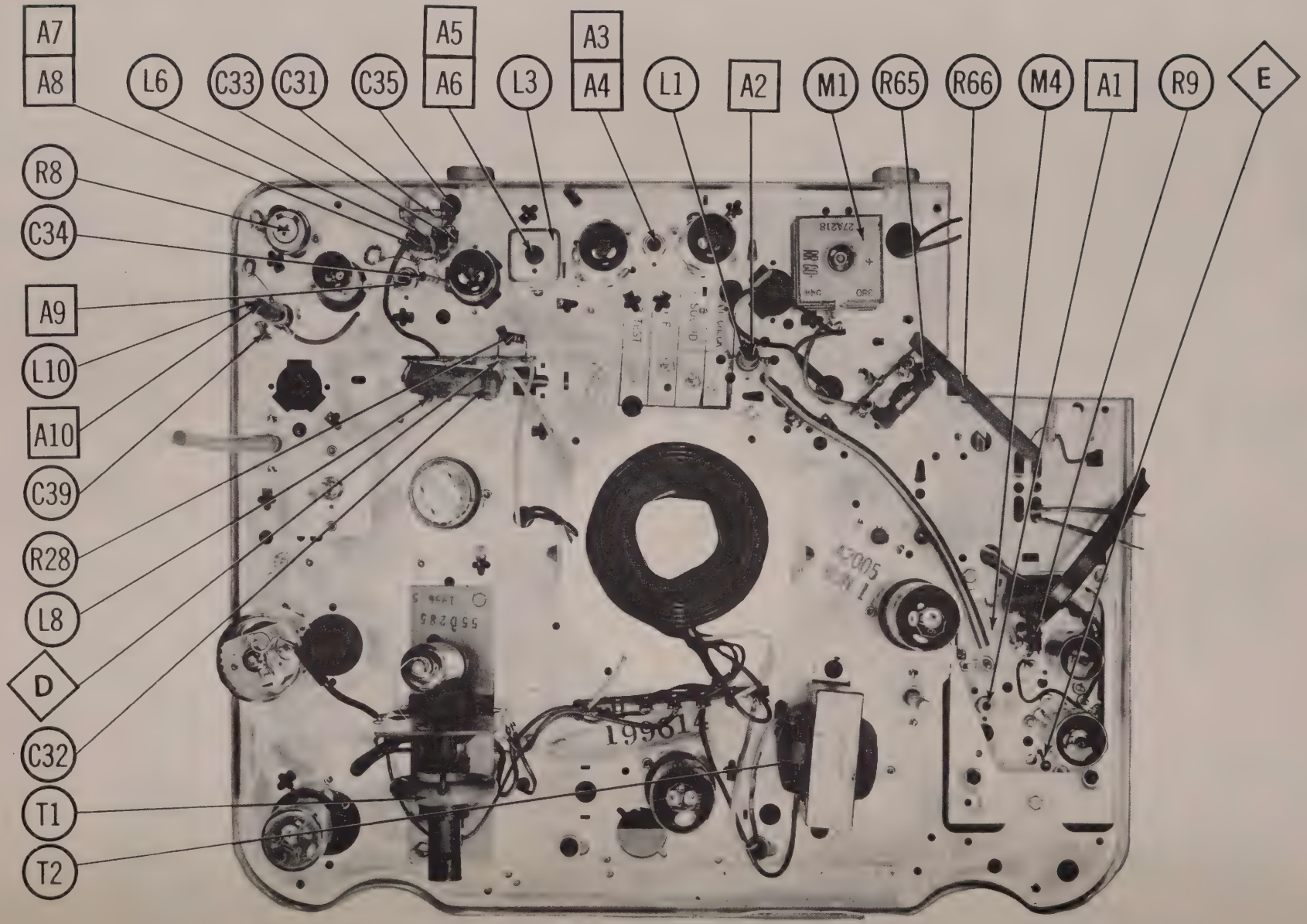
* Some versions may use crystal diode type CK-706A in this application.

MISCELLANEOUS

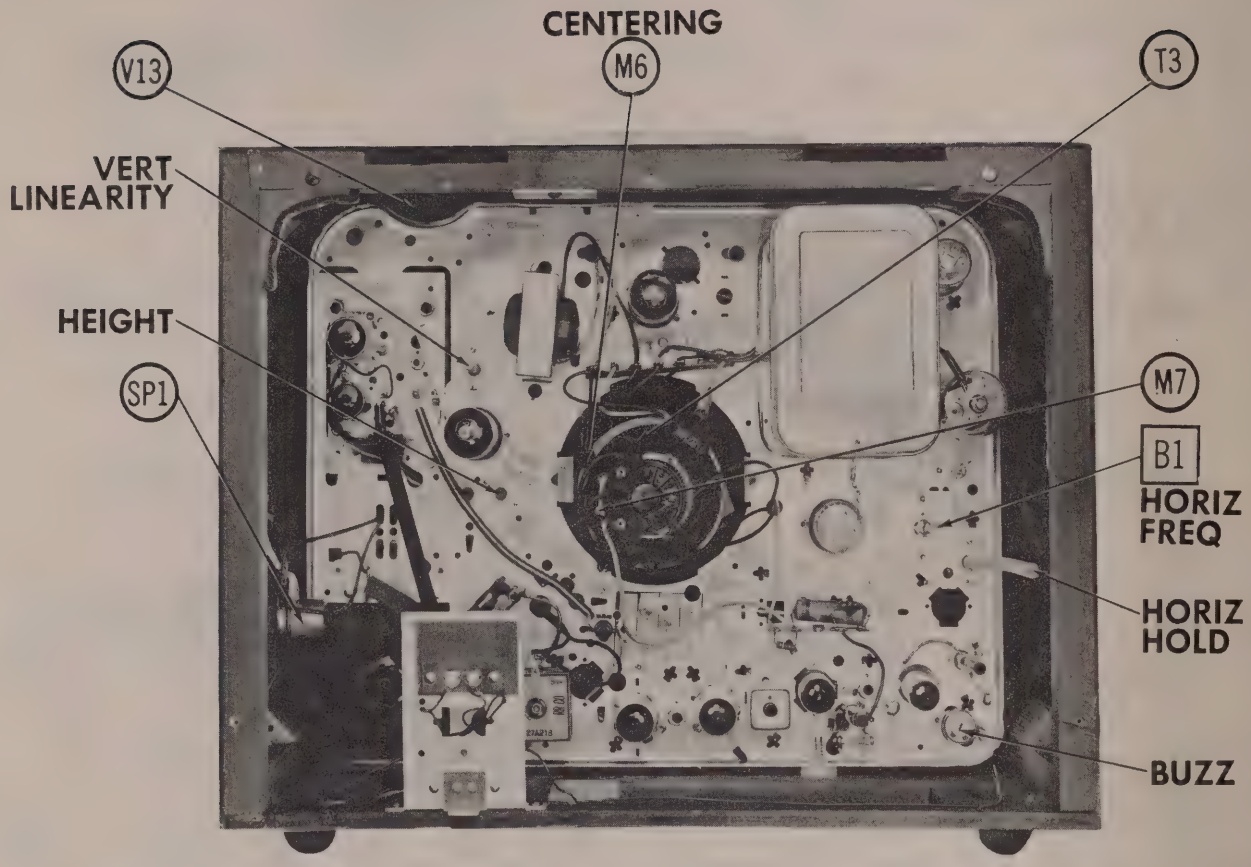
ITEM No.	PART NAME	ARTONE PART No.	NOTES
M4	Tuner	1-2619	VHF - Chassis A2005 (Run 1) & C2005 (Run 1)
M5	Tuner	1-2844	VHF-UHF Combination - Chassis B2005 (Run 1), D2005 (Run 1)
M6	Centering Device	21B216	
M7	Ion Trap	21B188	

ARTONE MODELS 17TT61MA, 21TT61MA, 21CT64MA

FOLDER 1



CHASSIS TOP VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

If the horizontal hold control fails to maintain sync, set it in the mid-range position and adjust the horizontal frequency slug (B1) until the picture synchronizes horizontally. Check other channels and if necessary, readjust B1 slightly for best sync on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type knobs from the front and 3 from the side.

2. Remove 11 wood screws from the rear cover. Remove the rear cover.

3. Remove 2 wood screws holding the range switch bracket.

4. Remove the speaker leads, picture tube socket, HV lead and yoke plug.

5. Remove 2 wood screws holding the top chassis bracket.

6. Remove 3 chassis bolts from the bottom.

7. Remove the chassis.

MODEL F4620SM (Ch. 8L41)

TRADE NAME	Philco	MODELS	CHASSIS
		F4210, E, L, F4212, L, F4618, L, F4620SL, SM, F4628, L	8L41
		F4210X	8L41B
		UF4210X	8L41BU
		UC4618, UF4210, E, L, UF4212, L, UF4618, L, UF4620SL, SM, UF4628, L	8L41U
		F4214STM, STN	8L42
		UF4214STM, STN	8L42U
		F4621S, SL, F4622, L, F4624, F4625S, SL, F4630, L, F4632, F4634, L, F4636, L	8L43
		UF4621S, SL, UF4622, L, UF4624, UF4625S, SL, UF4630, L, UF4632, UF4634, L, UF4636, L	8L43U
		F6206SL, F6620SL, SM	8P51
		F6206SL, SM, F6620SL	8P51A
		UF6206SL, SM, UF6620SL, SM	8P51U

MANUFACTURER	Philco Corp., Tioga & "C" Streets, Philadelphia, Pa.
TYPE SET	Television Receiver
TUBES	Sixteen
POWER SUPPLY	110-120 Volts AC, 60 Cycle RATING 185 Watts, 1.7 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF oscillator is possible by removing the channel selector and fine tuning knobs. Set the fine tuning at the center of its range. The adjustments (located in a circle around the shaft) should be made in sequence from the highest to the lowest channel in the area. Channel 13 adjustment is located at 9 o'clock, proceed in a counter clockwise direction adjusting for best picture and sound.

PICTURE TUBE SAFETY GLASS CLEANING

Remove 4 wood screws from the trim strip at the top of the safety glass. Tilt glass out at the top and lift up to remove.

FOCUS

The focus may be varied by the position of a strap on the base of the picture tube. The strap can be connected between pins 6 and 10 or 6 and 2. Readjust the ion trap for the best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENTS

Set the horizontal hold control at the center of its range, remove the knob and adjust the auxiliary horizontal hold (inner shaft) until picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate sound IF detector buzz, adjust the discriminator secondary (A9) located on top of chassis.

FUSES

One fuse is used for LV power supply protection. (For location, see tube placement chart.)

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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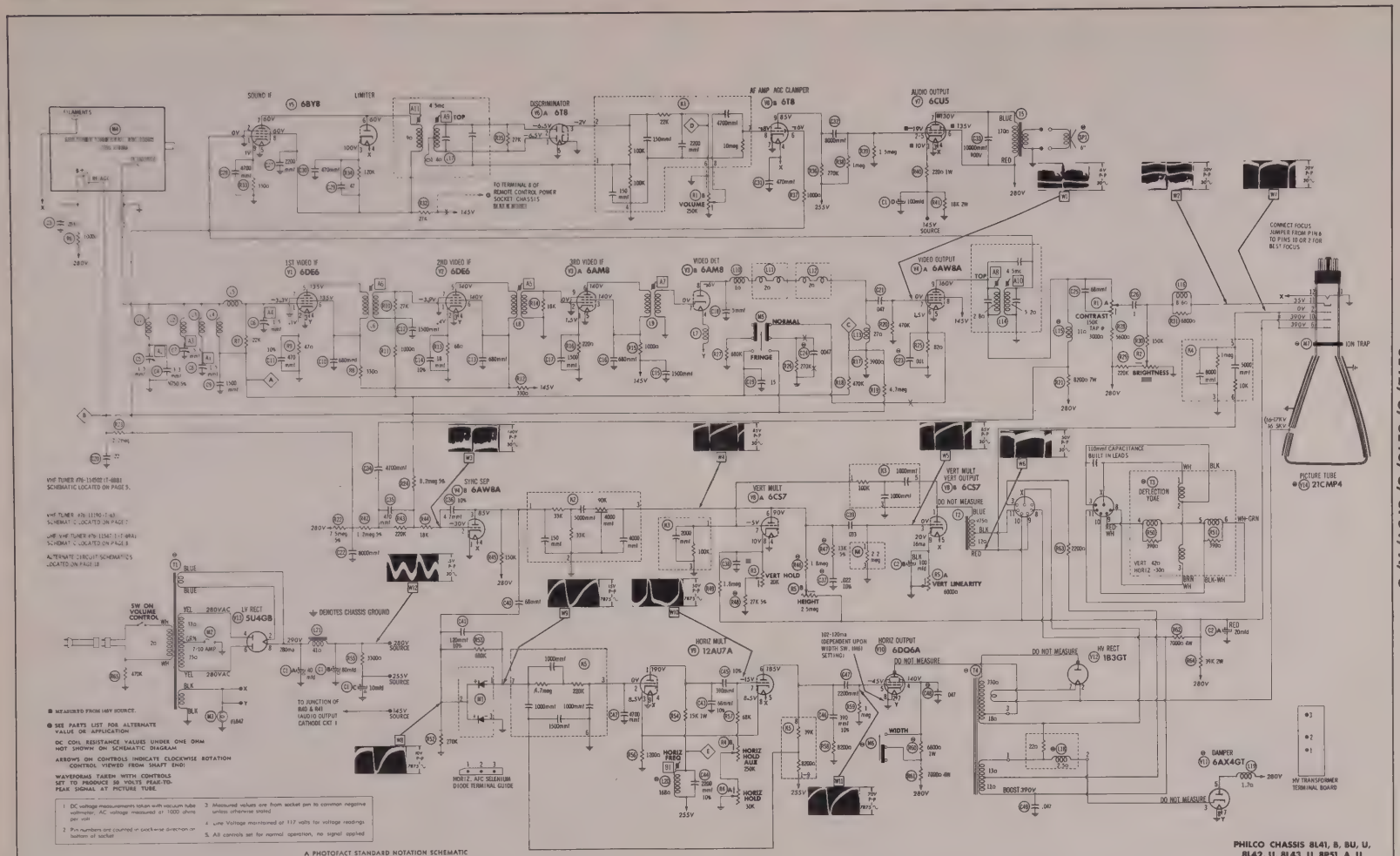
H458

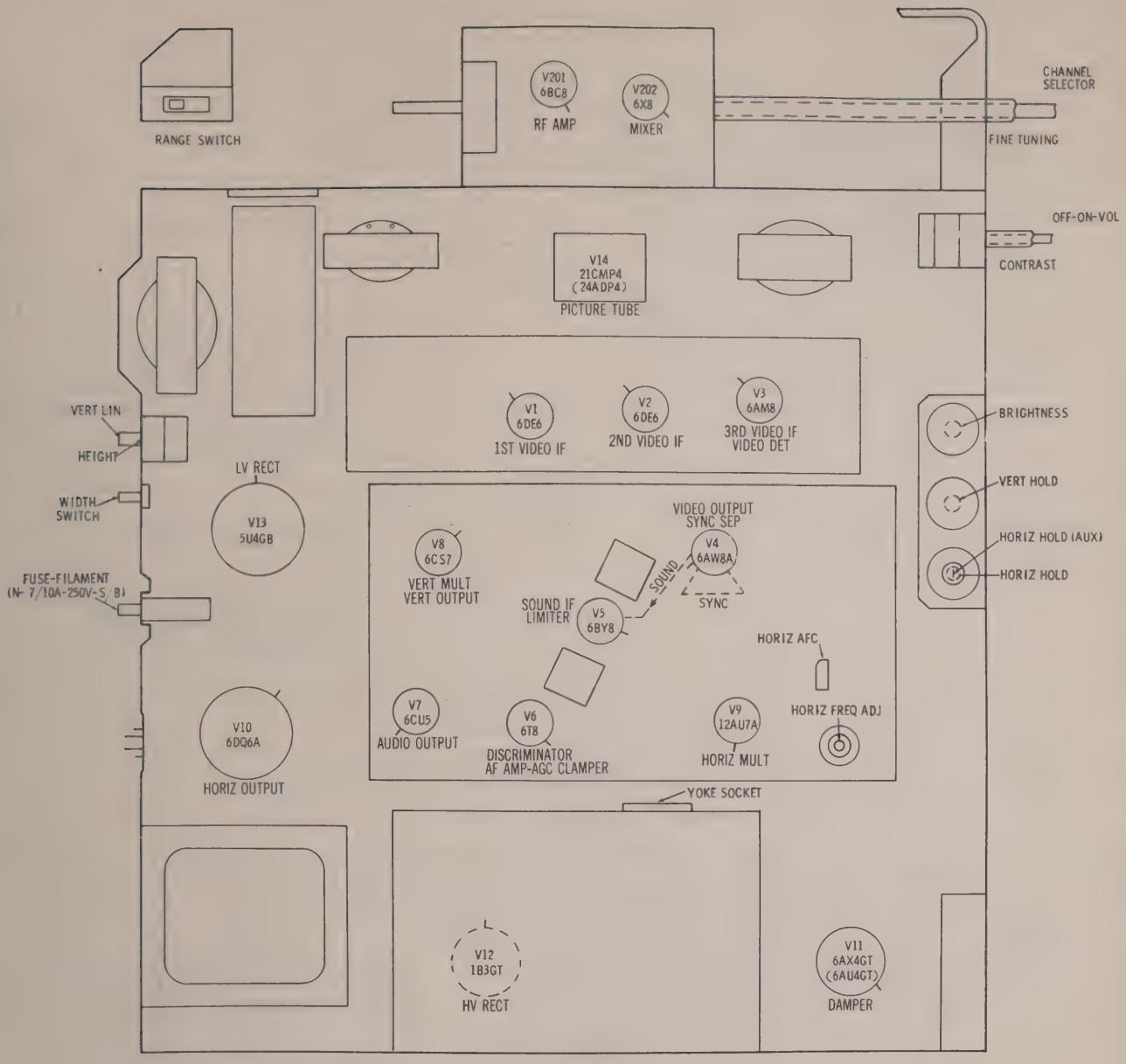

SOUND IF
V1 6BY8
LIMITER
DISCRIMINATOR
V5 A 6T8
AF AMP AGC CLAMPER
V5 B 6T8
AUDIO OUTPUT
V7 6CU5
1ST VIDEO IF
V1 6DE6
2ND VIDEO IF
V2 6DE6
3RD VIDEO IF
V3 A 6AM8
VIDEO DET
V3 A 6AM8
VIDEO OUTPUT
V4 A 6AW8A
SYNC SEP
V4 B 6AW8A
VERT MULT
V19 A 6CS7
VERT MULT
VERT OUTPUT
V19 B 6CS7
VERT LINEARITY
HORIZ MULT
V9 12AU7A
HORIZ OUTPUT
V10 6DQ6A
HV RECT
V12 1B3GT
DAMPER
V11 6AX4GT
LV RECT
V13 5U4GB
PICTURE TUBE
V16 21CMP4
CONTRAST
BRIGHTNESS
VOLUME
FOCUS
HEIGHT
WIDTH
HORIZ FREQ
HORIZ HOLD AUX
HORIZ HOLD
VERT HOLD
FRINGE
NORMAL
ION TRAP
SW ON VOLUME CONTROL
DENOTES CHASSIS GROUND
DO NOT MEASURE
BOOST 390V
HV TRANSFORMER TERMINAL BOARD
HORIZ AFC SELENIUM DIODE TERMINAL GUIDE
TO TERMINAL 8 OF REMOTE CONTROL POWER SOCKET-CHASSIS
TO JUNCTION OF R60 & R91 (AUDIO OUTPUT CATHODE CKT.)
CONNECT FOCUS JUMPER FROM PIN 6 TO PINS 10 OR 2 FOR MAG. FOCUS
VHF TUNER 476-1149D2 (T-6BB) SCHEMATIC LOCATED ON PAGE 5.
VHF TUNER 476-1119D-1 (-6A) SCHEMATIC LOCATED ON PAGE 7
UHF VHF TUNER 476-1154D-1 (T-6BA) SCHEMATIC LOCATED ON PAGE 8
ALTERNATE CIRCUIT SCHEMATICS LOCATED ON PAGE 18
■ MEASURED FROM 160Y SOURCE.
● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION CONTROL VIEWED FROM SHAFT END
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 30 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2. Pin numbers are counted in counter-clockwise direction on bottom of socket
3. Measured values are from socket pin to common negative unless otherwise stated
4. Line Voltage maintained at 117 volts for voltage readings
5. All controls set for normal operation, no signal applied
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHILCO CHASSIS 8L41, B, BU, U, 8L42, U, 8L43, U, 8P51, A, U

PHILCO CHASSIS 8L41, B, BU, U, 8L42, U, 8L43, U, 8P51, A, U

FOLDER 2

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound - **Fuse (M2), V13**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V1, V2, V3, V4, V7**
No pic, no sound, has snow - **V201, V202, V1**
No pic, has sound, has raster - **V4, V14, V7**
Has pic, no sound - **V5, V6, V7**

SYNC FAILURE
No vert. sync - **V4**
No horiz. sync - **V4, Rectifier (M1)**
No vert. or horiz. sync - **V4**

SWEEP FAILURE
No raster, has sound - **M1, V9, V10, V11, V12, V14**
No vertical deflection - **V8**
Poor vert. linearity or foldover - **V8**
Poor horiz. linearity or foldover - **V9, V10, V11**
Narrow picture - **V9, V10, V11, V13**
Vert. off freq. - **V8**
Horiz. off freq. - **V9**

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 5 volt bias supply to point Ⓐ. Positive to chassis.
Connect the negative lead of a 2.5 volt bias supply to point Ⓑ. Positive to chassis.
Attenuate generator to maintain not more than 2 volts peak to peak on maximum adjustments and no less than .2 volts on MINIMUM adjustments.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to ungrounded tube shield floating over mixer-oscillator tube (V202). Low side to chassis.	Not used	45.75MC (400∿ AM Mod)	4	Vert. Amp. thru 10K to point Ⓒ. Low side to chassis. (Across video det. load).	Mixer Plate Coil	Adjust for maximum 400∿ indication.
2.	"	"	"	41.25MC	"	"	A1	Adjust for MINIMUM 400∿ indication on scope. Bias may be reduced as MINIMUM is approached.
3.	"	"	"	47.25MC	"	"	A2, A3	Adjust for MINIMUM 400∿ indication on scope. Bias may be reduced as MINIMUM is approached. Repeat steps 2 and 3.
4.	"	"	"	42.7MC	"	"	A4, A5	Reset bias to original value. Adjust for maximum 400∿ indication.
5.	"	"	"	45.0MC	"	"	A6	"
6.	"	"	"	44.4MC	"	"	A7	"
7.	Two 120Ω Carbon Resistors	Across VHF antenna terminals with 120Ω in each lead.	"	65.75MC	"	"		Adjust for fine tuning for MINIMUM 400∿ indication.
8.	"	"	69MC (10MC Swp)	67.25MC 70.5MC	"	"		Check for response similar to Fig. 1. If necessary, retouch Mixer Plate Coil and A6 to place, 47.25MC at 50%, A7 to level curve, and A5 and A4 to correct high frequency slope of curve.

4.5MC TRAP ALIGNMENT

Use a 4.5MC detector similar to Fig. 2. Before aligning the trap, connect the detector to an accurate 4.5MC signal and adjust the coil slug for maximum DC output.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
9.	.001mfd	High side to point Ⓒ. Low side to chassis. (Across video det. load).	4.5MC (400∿ 30% AM Mod.)	Any non-interfering channel	DC probe thru detector (Fig. 2) to pin 11 (cathode) of picture tube. Common to chassis.	A8	Adjust for MINIMUM deflection.

SOUND IF ALIGNMENT

Use only enough generator output to provide a usable indication on VTVM.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point Ⓒ. Low side to chassis. (Across video det. load).	4.5MC (400∿ 30% AM Mod)	Any non-interfering channel	DC probe to point Ⓓ. Low side to chassis.	A9	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. If two zero crossover points are obtained, use the one with slug farthest counter clockwise.
11.	"	"	"	"	Across R34 (located in cathode circuit of limiter).	A10, A11	Adjust for maximum deflection. Reduce signal to maintain a reading of less than 30 volts. When adjusting A11, use peak with slug furthest clockwise. Repeat step 10.

TUNER ALIGNMENT INSTRUCTIONS LOCATED ON PAGES 13, 14 & 16.

FIG. 1

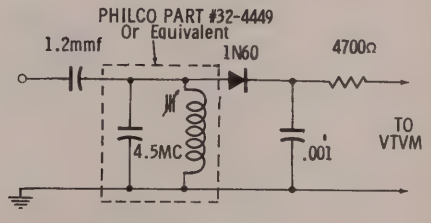


FIG. 2

VHF TUNER #76-114502 (T-68B) SCHEMATIC

◆ MEASURED FROM PIN 3 OF V201.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BC8	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6X8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	PHILCO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	5		30-1224-78	NPO-SI 5	TCZ-4R7	CTA6V47C	TCO-5	ZT-555	5TCCB-V47	NPO
C202	5		30-1224-78	NPO-SI 5	TCZ-4R7	CTA6V47C	TCO-5	ZT-555	5TCCB-V47	NPO
C203	39		62-039409011	DI-000039	DD-390	L10Q39	ED-470	UC-5439	5GA-Q39	
C204	5		30-1224-78	NPO-SI 5	TCZ-4R7	CTA6V47C	TCO-5	ZT-555	5TCCB-V47	NPO
C205	5		30-1224-78	NPO-SI 5	TCZ-4R7	CTA6V47C	TCO-5	ZT-555	5TCCB-V47	NPO
C206	5		30-1268-1							
C207	1000		30-1268-7	EF-001	MFT-1000				503C-D1	
C208	2.2		30-1221-6	NPO-SI 2.2	TCZ-2R2	CTA6V22C	TCO-2.2		5TCCB-V22	
C209	150		30-1268-6							
C210	1000		30-1268-7	EF-001	MFT-1000				503C-D1	
C211	330		30-1265-2	BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C212	65		30-1268-2							
C213	.5-3		31-6520-3		829-3		3115-D	CT565A		
C214	150		30-1268-6							
C215	7.5		30-1251-19							NPO
C216	1000		30-1268-7	EF-001	MFT-1000				503C-D1	
C217	1		30-1224-82	NPO-SI 1.0	TCZ-1		TCO-1		5TCCB-V1	NPO
C218	27		30-1224-146	NPO-SI 27	TCZ-27	CTA6Q27C	TCO-27			NPO
C219	27		30-1268-4							
C220	150		30-1268-6							
C221	2.2		30-1224-143							N2200
C222	680		62-16800101l	SI-680	D6-681	LT6T68	GP-680	UC-5368	5GA-T68	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

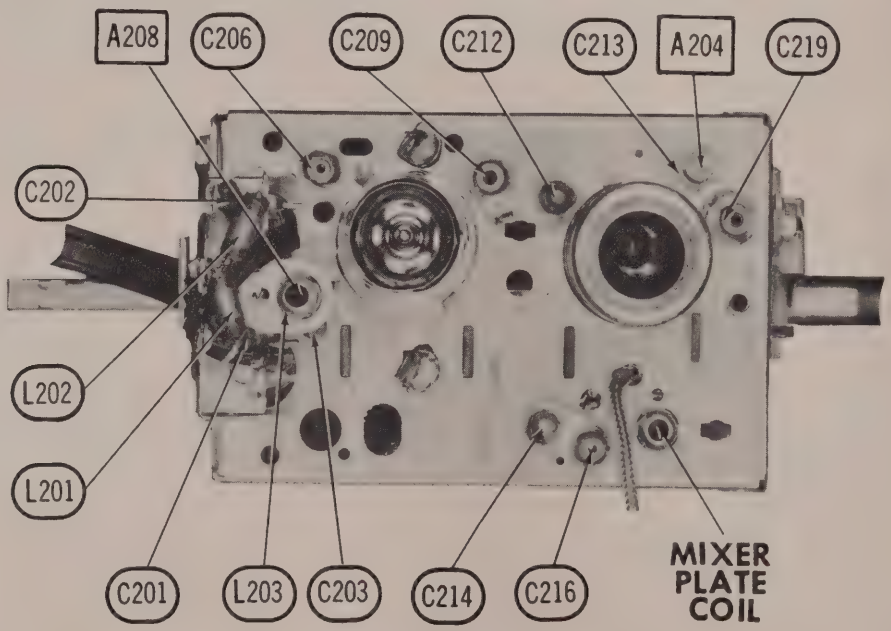
ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R201	10K		66-3108340	
R202	1500Ω		66-2158340	
R203	470K 5%		66-4478240	
R204	470K 5%		66-4478240	
R205	1800Ω	1	66-2184340	
R206	100K		66-4108340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R207	12K		66-3128340	
R208	68K	1	66-3684340	
R209	8200Ω		66-2828340	
R210	10K		66-3108340	
R211	100K	1	66-4104340	

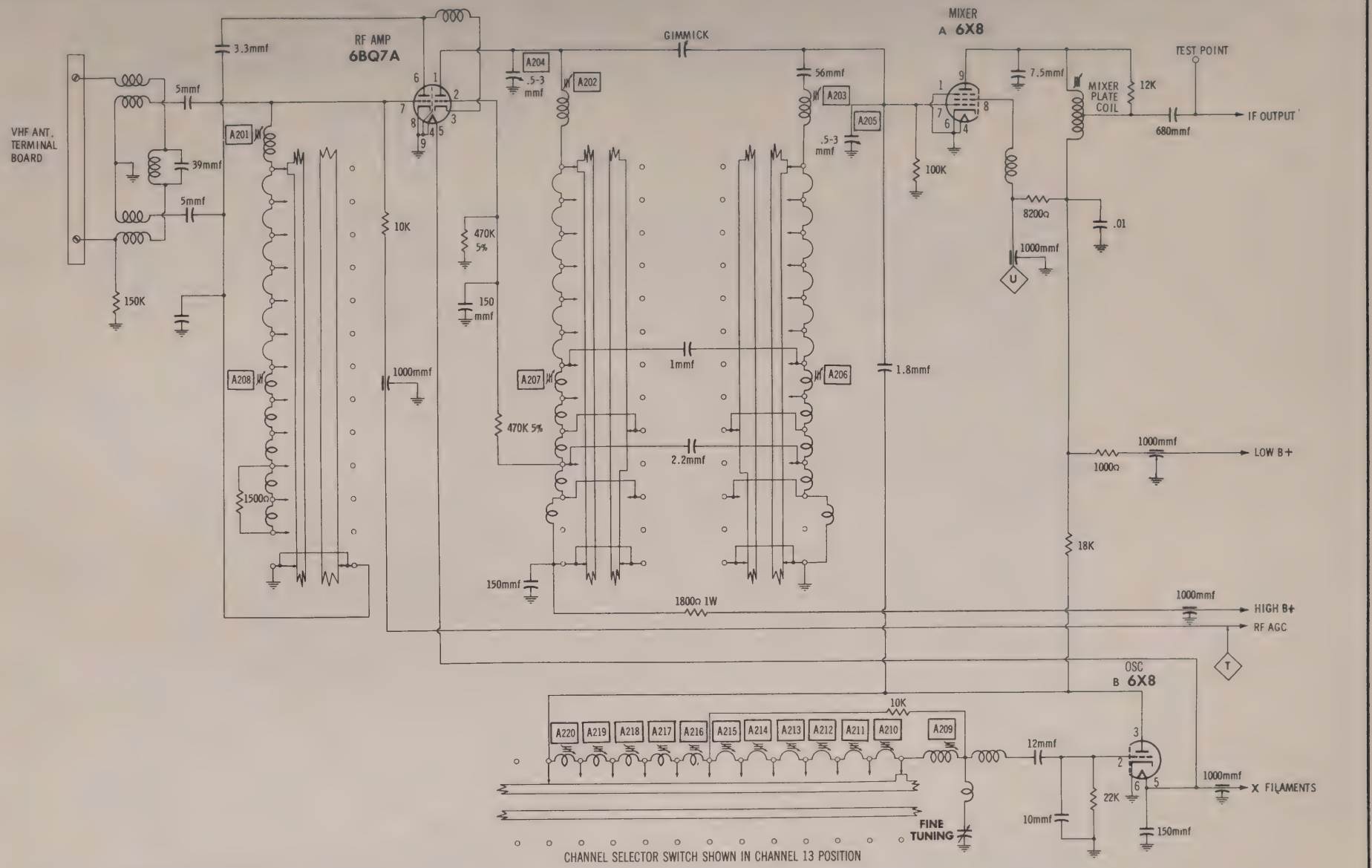
COILS (RF-IF)

ITEM No.	USE	PHILCO PART No.	NOTES
L201	IF Trap Coil	32-4645-31	
L202	IF Trap Coil	32-4645-31	
L203	IF Trap Coil	32-4719	
L204	Ant. Coil	32-4725	
L205	Ant. Coil	32-4725	
L206	Neut. Coil	32-4652-41	
L207	Ant. Coils	76-11498	Channel 2-13, includes wafer assembly

ITEM No.	USE	PHILCO PART No.	NOTES
L208	RF Coils	328-0111	Channel 2-13, includes wafer assembly
L209	Mixer Grid Coils	328-0112	Channel 2-13, includes wafer assembly
L210	Osc. Coils	76-11500	Channel 2-13, includes wafer assembly
L211	Mixer Plate Coil	32-4629-4	



RF TUNER—TOP VIEW



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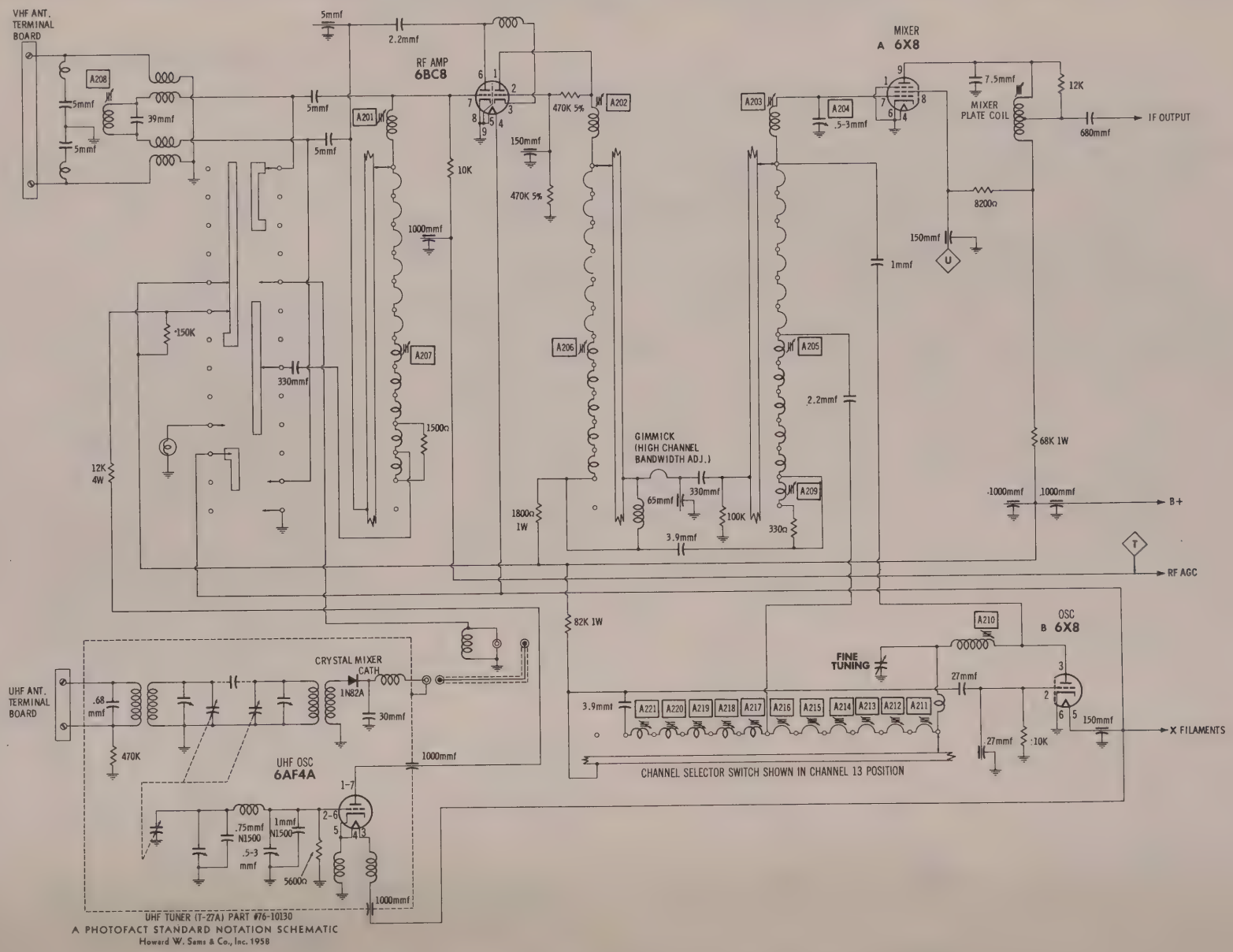
Howard W. Sams & Co., Inc. 1958

VHF TUNER #76-11190 (T-63) SCHEMATIC

PHILCO CHASSIS 8L41, B, BU, U,
8L42, U, 8L43, U, 8P51, A, U



UHF-VHF TUNER #76-11547-1 (T-69A) SCHEMATIC

MAIN PRINTED BOARD

PHILCO CHASSIS 8L41, B, BU, U,
8L42, U, 8L43, U, 8P51, A, U

FOLDER 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	1st Video IF Amp	6DE6	
V2	2nd Video IF Amp	6DE6	
V3	3rd Video IF Amp - Video Det	6AM8	
V4	Video Output-Sync Sep	6AW8A	
V5	Sound IF Amp - Limiter	6BY8	
V8	Discriminator-AF Amp - AGC Clamper	6T8	
V7	Audio Output	6CU5	
V8	Vert. Mult.-Vert. Output	6CS7	
V9	Horiz. Mult.	12AU7A	
V10	Horiz. Output	2DQ8A	
V11	Damper	6AX4GT	Note 1
V12	HV Rect.	1B3GT	
V13	LV Rect.	5U4GB	

Note 1. Ch. 8P51, U use 6AU4GT in this application.

PICTURE TUBE

ITEM No	REPLACEMENT DATA				NOTES
	PHILCO PART No	GENERAL ELECTRIC PART No	RCA PART No	SYLVANIA PART No	
V14	21CMP4	21CP4A, 24CP4A, 24TP4/ 24VP4A/ 24CP4-A/ 24ADP4 ②	21CMP4 ① 24ADP4/ 24AVP4-A/ 24CP4-A/ 24ADP4 ②	21CMP4 ① 24CP4A/ 24VP4A/ 24TP4 ②	① "Silver Screen 85" ② "Aluminized ③ "Silverama" ③

ELECTROLYTIC CAPACITORS

ITEM No	RATING		REPLACEMENT DATA						
	CAP	VOLT	PHILCO PART No	AEROVOX PART No	CORNELL-DUBILIER PART No	MALLORY PART No	PYRAMID PART No	SANGAMO PART No	SPRAGUE PART No.
C1A	40	350	30-2590-21 ①	AFH34-57-93		FP41J 9 TC80		Q-437 MT-25100	R2637*
B	80	350							
C	40	350							
D	100	200							
C2A	20	475	30-2417-59	PRSN475/ 50Y20/100	BBRD0646	MT-4720 MT-06100			R2638 *
B	100	50							

* Non-catalog item.
① Alternate part #30-2590-8.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING		REPLACEMENT DATA								NOTES
	CAP	VOLT	PHILCO PART No	AEROVOX PART No	CENTRALAB PART No	CORNELL-DUBILIER PART No	ERIE PART No	MALLORY PART No	SPRAGUE PART No		
C3	.033	400	30-4650-41	P468N-033		CUB5833		GEM-4133	87M-S33		
C4	3 3		30-1263-3				TC7-3.3		STCCB-V33		N750 ± .5mmf
C5	1-5		31-8535-1								
C6	1-5		31-8535-1								
C7	5-8		31-8535-2								
C8	1-8		31-8538-1								
C9	1500		30-1263-8	BPD-0015	DD-152	BYA101X5	ED-1500	DC5215	5HK-D15		
C10	680		30-1262-15	BPD-00068	DD-681	BYA101T68	ED-680	UC-5368	5GA-T68		
C11	470		30-1262-18			MD-471	ED-470				10%
C12	1500		30-1263-8	BPD-0015	DD-152	BYA101X5	ED-1500	DC5215	5HK-D15		
C13	680		30-1262-15	BPD-00068	DD-681	BYA101T68	ED-680	UC-5368	5GA-T68		
C14	18		30-1263-2		DD-180	L10G18	ED-18				10%
C15	1500		30-1263-8	BPD-0015	DD-152	BYA101X5	ED-1500	DC5215	5HK-D15		
C16	680		30-1263-15	BPD-00068	DD-681	BYA101T68	ED-680	UC-5368	5GA-T68		
C17	1500		30-1263-8	BPD-0015	DD-152	BYA101X5	ED-1500	DC5215	5HK-D15		
C18	8		30-1263	DK-000008	DD-050	L10V8	ED-8	ZT-5S5	5GA-V8		
C19	.15	300	30-4650-48	P288N-15		CUB2P15		GEM-3015	87M-P15		
C20	.22	300	30-4650-49	P288N-23		CUB2P23		GEM-3023	87M-P23		
C21	.047	300	30-4650-45	P288N-047	DF-S03	CUB5S47		GEM-5047	87M-S47		
C22	8000	30	30-1262-1								
C23	.001	400		P468N-001	DS-102	CUB5D1	GP-1000	GEM-421	87M-D1	①	
C24	.0047	400		P468N-0047	DS-472	CUB5D47	GP-4700	GEM-5247	87M-D47	②	
C25	68		5J-0646U9011	SI-000068	DS-680	L75Q68	GP-68	UC-5468	5GA-Q68		
C26	.1	600	30-4646-47	P468N-1		CUB4P1		GEM-401	87M-P1		
C27	2200		30-1262-7	BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5HK-D22		
C28	4700		30-1262-2	BPD-0047	DD-472	BYA10D47M		UC-5247	5HK-D47		
C29	.47	200	30-4625-34	P288N-47		CUB2P47		GEM-5047	87M-P47		
C30	470		30-1262-16	BPD-00047	DD-471	BYA10T47	ED-470	UC-5247	5GA-T47		
C31	470		30-1262-18	BPD-00047	DD-471	BYA10T47	ED-470	UC-5247	5GA-T47		
C32	8000		30-1262-1								
C33	10000	900	30-1267-1			DD-103			10HK8-S1		
C34	4700		30-1262-2	BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5HK-D47		
C35	470		30-1262-19	BPD-00047	DD-471	BYA10T47	ED-470	UC-5247	5GA-T47		
C36	4 7		30-1221-13	NPO-S14.7	TCZ-4R7	CTA5V47C	TCO-4.7	ZT-5547	5TCCB-V47		10% ③
C37	.022	400									10% ③
C38	22	100	30-4650-49	P288N-22		CUB2P22		GEM-2022	87M-P23		
C39	.033	600	30-4646-44	P468N-033		CUB6S3		GEM-6133	87M-S33		
C40	68		30-1263-4	BPD-000068	DD-680	L10Q68	ED-68	UC-5468	5GA-Q68		
C41	120		30-1263-5	NPO-DI 120	DD-121	L10T12	ED-120	UC-5312	5TCC-T12		10%
C42	4700		30-1262-3	BPD-0047	DD-472	BYA10D47M	ED-0047	UC-5247	5HK-D47		
C43	82		30-1264-14	1469-000068		2SR5Q68	CY10C680K		MS-468		10%
C44	2200		30-1264-4	1469-0022		1R5D22	CY30C222K		MS-322		10%
C45	390		30-1264-1	1469-00039	DS-391	5R5T39	CY15C391K		MS-339		10%
C46	390		30-1264-1	1469-00039	DS-391	5R5T39	CY15C391K		MS-339		10%
C47	2200		30-1262-7	BPD-0022	DD-472	BYA10D22	ED-0047	UC-5222	5HK-D22		
C48	.047	600	30-4650-45	P468N-047	DF-503	CUB4S47		GEM-4147	87M-S47		③
C49	.047	600	30-4650-45	P468N-047	DF-503	CUB4S47		GEM-6147	87M-S47		

① Some versions may use .0056mfd 10% 400V in this application (Part #30-4651-11).
② Not used in some versions.
③ Some versions may use .033mfd 10% 400V in this application (Part #30-4688-3).
④ Ch. 8P51, A, U may use 1000mmf in this application (Part #30-1238-3).

CONTROLS

ITEM No	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	PHILCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	15K	½	33-5522-15			† (U-1077		Contrast-Tap ⑥ 30006 ①
B	250K							Volume ⑥
C	Switch							
R2A	100K	½	33-5521-1			** (U-989	** (	Brightness
B	Shaft							
R3A	30K	½	33-5522-13			## (U-988	## (	Vert. Hold
B	Shaft							
R4A	30K	½	33-5522-5			^ (U-987	°° (U8378	Horiz. Hold
B	250K							Horiz. Aux.
R5A	5000Ω	½	33-5522-13			^^ (U-986	^^ (U8379	Vert. Lin.
B	2.5meg							Height

@ Not available as a factory assembled control.
† "Concentrikit" Equivalent: K-7 Kit, Base Elements & Shafts B13-118X, P13-217 (Panel) B13-133, R1-238 (Rear) 78-1 (Switch)
* "Concentrikit" Equivalent: K-6 Kit, Base Element & Shaft B11-128, P17-036.
** "STA-LOC" Equivalent. FA15L, C6875
‡ "Concentrikit" Equivalent: K-6 Kit, Base Element & Shaft B11-119, P17-028.
‡‡ "STA-LOC" Equivalent. FA2531, C6875
* "Concentrikit" Equivalent: K-6 Kit, Base Elements & Shafts B11-121, P17-048 (Panel) B11-130, R15-005 (Rear)
°° "STA-LOC" Equivalent: FA34L, C6875, RU2541, B575.
^ "Concentrikit" Equivalent: K-6 Kit, Base Elements & Shafts B11-115, P14-024 (Panel) B11-129, R15-005 (Rear)
^^ "STA-LOC" Equivalent: FA35L, C6750, RU2551, B437.
① Alternate part #33-5522-4 may be used in Ch. 8L41, U, 8L43, U, 8P51, A, U. Ch. 8L43, U use individual controls: Contrast Part #33-5593-4; Volume Part #33-5593-3.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R6	1000Ω		66-2108340	
R7	22K		66-3228340	
R8	330Ω		66-1338340	
R9	47Ω		66-0478340	
R10	47K		66-3478340	
R11	1000Ω		66-2108340	
R12	330Ω		66-1338340	
R13	56Ω		66-0568340	
R14	18K		66-3188340	
R15	1000Ω		66-2108340	
R16	220Ω		66-1228340	
R17	3900Ω		66-2398340	
R18	470K		66-4478340	
R19	4.7meg		66-5478340	
R20	470K		66-4478340	
R21	82000Ω	T	66-1338-108	
R22	7.5meg 5%		66-5758240	
R23	2.2meg		66-5228340	
R24	8.2meg 5%		66-5828240	
R25	82Ω		66-0828340	
R26	470K		66-4478340	
R27	680K		66-4688340	
R28	56000Ω		66-2568340	
R29	220K		66-4228340	
R30	150K		66-4158340	
R31	68000Ω		66-2688340	
R32	27K		66-3278340	
R33	330Ω		66-1338340	
R34	120K		66-4128340	
R35	27K		66-3278340	

ITEM No.	RATING		PHILCO PART No.	NOTES
	OHMS	WATT		
R36	470K		66-4478340	
R37	1000Ω		66-2108340	
R38	1meg		66-5108340	
R39	1.5meg		66-5158340	
R40	330Ω	1	66-1234340	
R41	18K	2	66-3188340	
R43	1.2meg 5%		66-5128240	
R43	220K		66-4228340	
R44	18K		66-3188340	
R45	150K		66-4158340	
R46	1.5meg		66-5158340	Note 1
R47	18K 5%		66-3188240	Note 2
R48	27K 5%		66-3278240	Note 2
R49	1.5meg		66-5158340	
R50	390Ω		66-1398340	
R51	330Ω		66-1338340	
R52	270K		66-4278340	
R53	680K		66-4688340	
R54	15K	1	66-3158340	
R55	3300Ω		66-2338340	
R56	1400Ω		66-2148340	
R57	68K		66-3688340	
R58	8200Ω		66-2828340	
R59	1meg		66-5108340	
R60	6800Ω	1	66-2684340	Note 3
R61	70000Ω	4	33-1363-9	
R62	70000Ω	4	33-1363-9	
R63	2200Ω		66-2228340	
R64	33K	2	66-3338340	
R65	470K		66-4478340	

Note 1. Some versions may use 1meg in this application (Part #66-5108340).
Note 2. Some versions may use 15K in this application (Part #66-3158340).
Note 3. Not used in Ch. 8P51, A, U.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2		PHILCO PART No	Halldorson PART No	Merit PART No	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T1	117VAC	540VCT	5VAC		32-8807-2 ①						
	②1.7A	③.475A	④2.7A								
	SEC. 3	SEC. 4	SEC. 5								
	6.3VAC 2.5 A										

① Used in Ch. 8L41, U, 8L43, U. Ch. 8P51, A, U use Part #32-8811-2. Ch 8L41, U use Part #32-8807-1.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA							NOTES
		PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	
T2	Vert. Output	32-8658-4	Z1804	A-3037	V313	A-8L23	26B62	A-102X	
T3A	Yoke-Horiz. (40MH)	76-10119-2 ①	DF-807 ②	MDF-92	2Y90F19/43	DY-16A ③	Y-16 ④	Y-16 ④	
B	(90°) Vert. (47MH)								
	Yoke	76-10119 ①							
T4	Horiz. Output	32-8806-2 ③							
	Alt. Horiz. Output	32-8806-1 ③							
	Horiz. Output	32-8810-1 ③							

① Includes yoke plug and leads with 100mmf capacity between white and black leads.
② Use original yoke plug and leads, original damping network and connect same as original.
③ Used in Ch. 8L41, U, 8L42, U, 8L43, U.
④ Used in Ch. 8P51, A, U.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T5	4500Ω	3-4Ω	32-8748	Z1103 ①	A-3025 ②	AU-603	A-3876	44B45	S-1X	① Tape hum reducing tap. ② Drill new mounting hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	PHILCO PART No.	QUAM PART No.	
SP1	6"	PM	3-4Ω	30-1641-25 ①	8A16	① Used in Models F/UF4620BL, 5M. ② Used in Models F/UF4642B, 9L, F/UF4623, L, F/UF4624, F/UF4625S, 8L, F/UF4630, L, F/UF4632, F/UF4634, L, F/UF4636, L. ③ Used in Models F/UF4642B, 9L, F/UF4623, L, F/UF4625S, 8L, F/UF4630, L, F/UF4632, F/UF4634, L, F/UF4636, L. ④ Used in Models F/UF4618, L, UC4618 ⑤ Used in Models F/UF4310, E, L ⑥ Used in Models F/UF4310X, F/UF4313, L, F/UF4314GTM 5TM, F/UF5206BL, 5M ⑦ Used in Models F/UF5620BL, 5M
	8"	PM		30-1641-26 ②		
	8"	PM		30-1641-29 ③ 45-9767 ④ 36-1635-9 ⑤ 36-1871-4 ⑥ 36-1567-3 ⑦		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		PHILCO PART No	Meissner PART No	Merit PART No	Miller PART No	Ram PART No	
L1	47.45MC Trap Coil	32-4545-3	19-1002	BC-563	4606		2.44 Microhenries
L2	47.45MC Trap Coil	32-4545-18					2.2 Microhenries
L3	41.25MC Trap Coil	32-4545-17					3.6 Microhenries
L4	RF Choke	32-4545-20	19-1000	BC-561	4602		1.1 Microhenries
L5	1st. Video IF	32-4545-2	19-1001	BC-562	4604	VP-9	1.7 Microhenries
L6	2nd. Video IF	32-4586-2					
L7	FL. Choke	32-4545-18					2.1 Microhenries
L8	3rd. Video IF	32-4586-4					
L9	4th. Video IF	32-4586-3					
L10	Resonant Choke	32-4545-7					5 Microhenries
L11	RF Choke	32-4574-1	19-5022	TV-122	6152		23 Microhenries
L12	Resonant Choke	32-4574-1	19-5022	TV-122	6152		23 Microhenries
L13	Shunt Peaking Coil	32-4580-14	19-3550	TV-206	6148		620 Microhenries
L14A	4.5MC Trap	32-4588-3					
B	Sound IF						
L15	Shunt Peaking Coil		19-3500	TV-203	6138	VP-8	470 Microhenries-Note 1
L16	Series Peaking Coil	32-4590-8	19-3450	TV-198	6130	VP-6	470 Microhenries
L17	Discriminator	32-4588-1					Tertiary - 1.4Ω
L18	RF Choke		19-5022	TV-192 *	6152 *		20 Microhenries, wound in series on a 22Ω resistor
L19	RF Choke	32-4112-50	19-1005	BC-586	4622		11 Microhenries

* Use a 22Ω 1 watt resistor in series.
Note 1. Some versions may use 390 microhenries in this application (Part #33-4690-11).

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	PHILCO PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L20	168Ω		32-4672-3						30-88 Milliheneries (Early Production)
			32-4672-2						35-70 Milliheneries (Late Production)

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT (1000 Cy.)	PHILCO PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No
L21	.365A	41Ω	1.3 Hy.	32-8710	C5037 ①	C-3996 ①		C-2326 ①	28C44 ①	C-23X

① Drill new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	PHILCO PART No	REPLACEMENT DATA
R1	Audio Network	150mmf, 150mmf, 2200mmf, 4700mmf, 22K, 100K, 100K, 10meg	30-8506-1	
R2	Vert. Integrator	150mmf, 4000mmf, 4000mmf, 5600mmf, 33K, 33K, 90K	30-8030-3	
R3	Vert. Feedback	1000mmf, 1000mmf, 2000mmf, 100K, 100K	30-8504-1	
R4	Vert. Retrace	8000mmf, 8000mmf, 10K, 1meg, 2.2meg	30-8507-2 ①	
R5	Horiz. AFC	1000mmf, 1000mmf, 1000mmf, 1500mmf, 8200Ω, 39K, 220K, 4.7meg	30-8506-2	

* Alternate part #30-8507-3.

RECTIFIERS

ITEM No	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	PHILCO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1		34-8037-2 ①	1615 ①		171 ①②		① Selenium type. ② Two required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			PHILCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
MS	M	7/10A 250V	27-8318-1	27-8317-8	333.600 (7/10A-125V-S/B)	3460U0	N7 /10 (7/10A-250V S/B)	HM 1/2 to 3/4

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	PHILCO PART No.	NOTES
M3	Lamp	34-2031-4	#1847
M4	Tuner	76-11450-2	VHF (T-68B) Ch. 8L41, B, 8L42, 8L43, 8P51
	Tuner	76-11190	VHF (T-63) Ch. 8P51A
	Tuner	76-11547-1	UHF-VHF (T-69A) Ch. 8L41U, 8L42U, 8L43U, 8P51U
	Tuner	76-10130	UHF (T-27A) Ch. 8L41U, 8L42U, 8L43U, 8P51U
M5	Switch	42-2075-2	Range (DPDT, Slide Type)
M6	Switch	42-2075-1	Width (SPST, Slide Type) Not used in Ch. 8P51, A, U
M7	Ion Trap	76-6077-5	Ch. 8L41, B, U, 8L42, U, 8L43, U
	Ion Trap	76-6077-2	Ch. 8P51, A, U
M8	Magnet Assy.	76-11069-2	Centering
	Magnet	54-6349	
	Printed Board	54-9826	Video IF
	Printed Board	54-5278-1	Main

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	54-9213-70	Models F/UF4210X, 4212, L, 4214STM, 4618, 4620SL, SM
Safety Glass	54-9213-7	Models F/UF4214STN
Safety Glass	54-9213-17	Models F/UF4210, E, L
Safety Glass	54-9213-69	Models F/UF4621S, SL, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, L, 4634, L, 4636, L
Safety Glass	54-9213-68	Models F/UF6206SL, SM, 6620SL, SM
Mask	54-5265-1	Models F/UF4210L,X, 4212, L, 4214STN, 4618, L, 4620SL, SM
Mask	54-5265-3	Models F/UF4210E
Mask	54-5265-2	Models F/UF4214STM
Mask	54-6296-4	Models F/UF4621S, SL, 4622, 4624, 4625S, SL, 4628, 4630, L, 4636, L
Mask	54-6296-1	Models F/UF4622L, 4628L, 4632, 4634, L
Mask	54-6431-1	Models F/UF6206SL, SM
Mask	54-6431-3	Models F/UF6620SL, SM
Knob	54-6406-1	On-Off-Volume - Models F/UF4210, 4618, L, 4620SL, SM, 4621S, SL, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, 4634, L, 4636, L, 6620SL, SM
Knob	54-6406-2	On-Off-Volume - Models F/UF4210E, L, X, 4212, L, 6206SL, SM
Knob	54-6204-5	Volume - Models F/UF4214STM, STN
Knob	54-6265-11	Vert. Hold - Models F/UF4210, L, X, 4212, 4214STM, 4620SM, 6206SM, 6620SM
Knob	54-6265-29	Vert. Hold - Models F/UF4210E
Knob	54-6265-14	Vert. Hold - Models F/UF4212L, 4214STN, 6206SL
Knob	54-6265-31	Vert. Hold - Models F/UF4618
Knob	54-6265-34	Vert. Hold - Models F/UF4618L
Knob	54-6265-13	Vert. Hold - Models F/UF4620SL, 6620SL
Knob	54-6265-23	Vert. Hold - Models F/UF4621S, 4622, 4624, 4625S, 4628, 4630, 4634, 4636
Knob	54-6265-26	Vert. Hold - Models F/UF4621SL, 4622L, 4625SL, 4628L, 4630L, 4632, 4634L, 4636L
Knob	54-6265-12	Horiz. Hold - Models F/UF4210, L, X, 4212, 4214STM, 4620SM, 6206SM, 6620SM
Knob	54-6265-30	Horiz. Hold - Models F/UF4210E
Knob	54-6265-15	Horiz. Hold - Models F/UF4212L, 4214STN, 6206SL
Knob	54-6265-32	Horiz. Hold - Models F/UF4618
Knob	54-6265-14	Horiz. Hold - Models F/UF4620SL, 6620SL
Knob	54-6265-35	Horiz. Hold - Models F/UF4618L
Knob	54-6265-24	Horiz. Hold - Models F/UF4621S, 4622, 4624, 4625S, 4628, 4630, 4634, 4636
Knob	54-6265-27	Horiz. Hold - Models F/UF4621SL, 4622SL, 4625SL, 4628L, 4630L, 4632, 4634L, 4636L
Knob	54-6407-1	Contrast - Models F/UF4210, 4618, L, 4620SL, SM, 4621S, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, 4634, L, 4636, L, 6620SL, SM
Knob	54-6407-2	Contrast - Models F/UF4210E, L, X, 4212, L, 6206SL, SM
Knob	54-6405-1	Contrast - Models F/UF4214STM
Knob	54-6405-2	Contrast - Models F/UF4214STN
Knob	54-6265-27	Contrast - Model UF4621SL
Knob	54-6265-10	Brightness - Models F/UF4210, L, X, 4212, 4214STM, 4620SM, 6206SM, 6620SM
Knob	54-6265-28	Brightness - Models F/UF4210E
Knob	54-6265-13	Brightness - Models F/UF4212L, 4214STN, 6206SL
Knob	54-6265-33	Brightness - Models F/UF4618
Knob	54-6265-36	Brightness - Models F/UF4618L
Knob	54-6265-15	Brightness - Models F/UF4620SL, 6620SL
Knob	54-6264-22	Brightness - Models F/UF4621S, 4622, 4624, 4625S, 4628, 4630, 4634, 4636
Knob	54-6265-25	Brightness - Models F/UF4621SL, 4622L, 4625SL, 4628L, 4630L, 4632, 4634L, 4636L
Knob	76-11142-9	Channel Selector - Models F4210, 4618, L, 4620SL, SM, 4621S, SL, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, 4634, L, 4636, L, 6620SL, SM
Knob	76-11142-10	Channel Selector - Models UF4210, E, 4618, L, 4620SL, SM, 4621S, SL, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, 4634, L, 4636, L, 6620SL, SM
Knob	76-11142-11	Channel Selector - Models F4210E, L, X, 4212, L, 6206SL, SM
Knob	76-11142-12	Channel Selector - Models UF4210L, X, 4212, L, 6206SL, SM
Knob	54-6135-3	Channel Selector - Models F/UF4214STM, STN
Knob	54-6307-3	Fine Tuning - Models F/UF4210
Knob	54-6307-4	Fine Tuning - Models F/UF4210E, L, X, 4212, 4618, L, 4620SL, SM, 4621S, SL, 4622, L, 4624, 4625S, SL, 4628, L, 4630, L, 4632, 4634, L, 4636, L, 6206SL, SM, 6620SL, SM
Knob	54-6307-2	Fine Tuning - Models F/UF4212L
Knob	54-6403-1	Fine Tuning - Models F/UF4214STM, STN

WIRING DATA

High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT FOR TUNER #T69A

Connect the negative lead of a 1.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect a 10 to 20mmf capacitor across the Mixer Plate Coil.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	210MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201	Adjust for maximum gain and symmetry of response similar to Fig. 201.
2.	"	"	"	210MC 216MC	"	"	A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown.
3.	"	"	177MC	174MC 180MC	7	"	A204	Adjust for correct tilt at top of curve. Curve should be centered in passband and symmetrical. This compensates for channel 13 adjustment's effect on channel 7. (See Fig. 202).
4.	"	"	85MC	82MC 85MC 88MC	6	"	A205, A206, A207	Turn A205 counter clockwise until a single peak appears. Adjust A206 until the single peak falls at 85MC. Adjust A207 for maximum amplitude and symmetry of single peak. Retouch A205 thru A207 for response similar to Fig. 203.
5.	"	"	Not used	43.5MC (400∿ 30% AM Mod)	4	Across video detector load.	A208	Adjust for MINIMUM 400∿ indication.
6.	1500mmf	High side to point Ⓥ. Low side to chassis.	43.5MC	43.5MC	UHF	"	A209	Adjust for a flat response.

VHF OSCILLATOR ALIGNMENT FOR TUNER #T69A

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	209.75MC (400∿ AM)	13	Across video detector load.	A210	Adjust for MINIMUM 400∿ indication.
			203.75MC	12		A211	
			197.75MC	11		A212	
			191.75MC	10		A213	
			185.75MC	9		A214	
			179.75MC	8		A215	
			173.75MC	7		A216	
			81.75MC	6		A217	
			75.75MC	5		A218	
			65.75MC	4		A219	
			59.75MC	3		A220	
			53.75MC	2		A221	

UHF TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

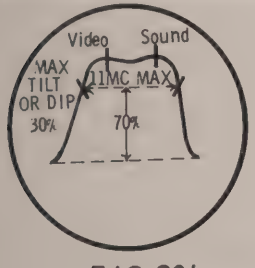
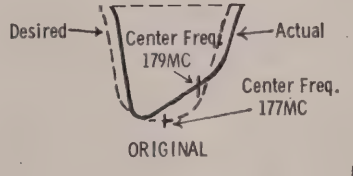


FIG. 201



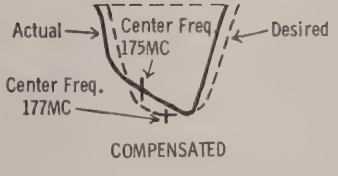


FIG. 202

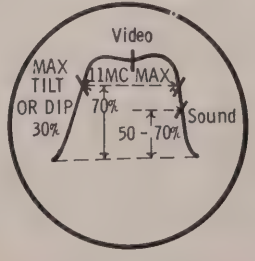


FIG. 203

PHILCO CHASSIS 8L41, B, BU, U, 8L42, U, 8L43, U, 8P51, A, U

FOLDER 2

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT FOR TUNER #T63

Connect the negative lead of a 1.5 volt bias supply to point ⓣ. Positive to chassis.
Connect a 10 to 20mmf capacitor across the Mixer Plate Coil.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	210MC	13	Vert. Amp. thru 10K to point ⓥ. Low side to chassis.	A201	Adjust for maximum gain and symmetry of response similar to Fig. 201.
2.	"	"	"	210MC 216MC	"	"	A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown. Adjust A202 to set marker level and A203 for proper tilt.
3.	"	"	177MC	174MC 180MC	7	"	A204, A205	Adjust for correct tilt at top of curve. Curve should be centered in passband and symmetrical. This compensates for channel 13 adjustment's effect on channel 7. (See Fig. 202.)
4.	"	"	85MC	82MC 85MC 88MC	6	"	A206, A207, A208	Turn A206 counter clockwise until single peak appears. Adjust A207 until the peak appears at 85MC. Adjust A208 for maximum gain and symmetry of single peak. Retouch A206 and A207 for symmetrical response centered about 85MC as in Fig. 202.

VHF OSCILLATOR ALIGNMENT FOR TUNER #T63

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	Direct	Across antenna terminals.	209.75MC (400∿ AM)	13	Across video detector load.	A209	Adjust for MINIMUM 400∿ indication.
			203.75MC	12		A210	
			197.75MC	11		A211	
			191.75MC	10		A212	
			185.75MC	9		A213	
			179.75MC	8		A214	
			173.75MC	7		A215	
			81.75MC	6		A216	
			75.75MC	5		A217	
			65.75MC	4		A218	
			59.75MC	3		A219	
			53.75MC	2		A220	

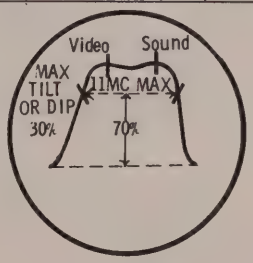


FIG.201

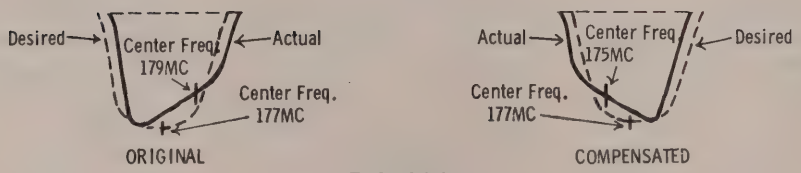


FIG.202

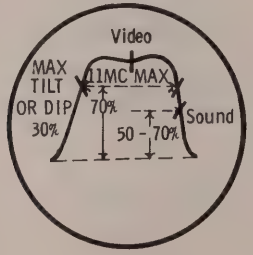
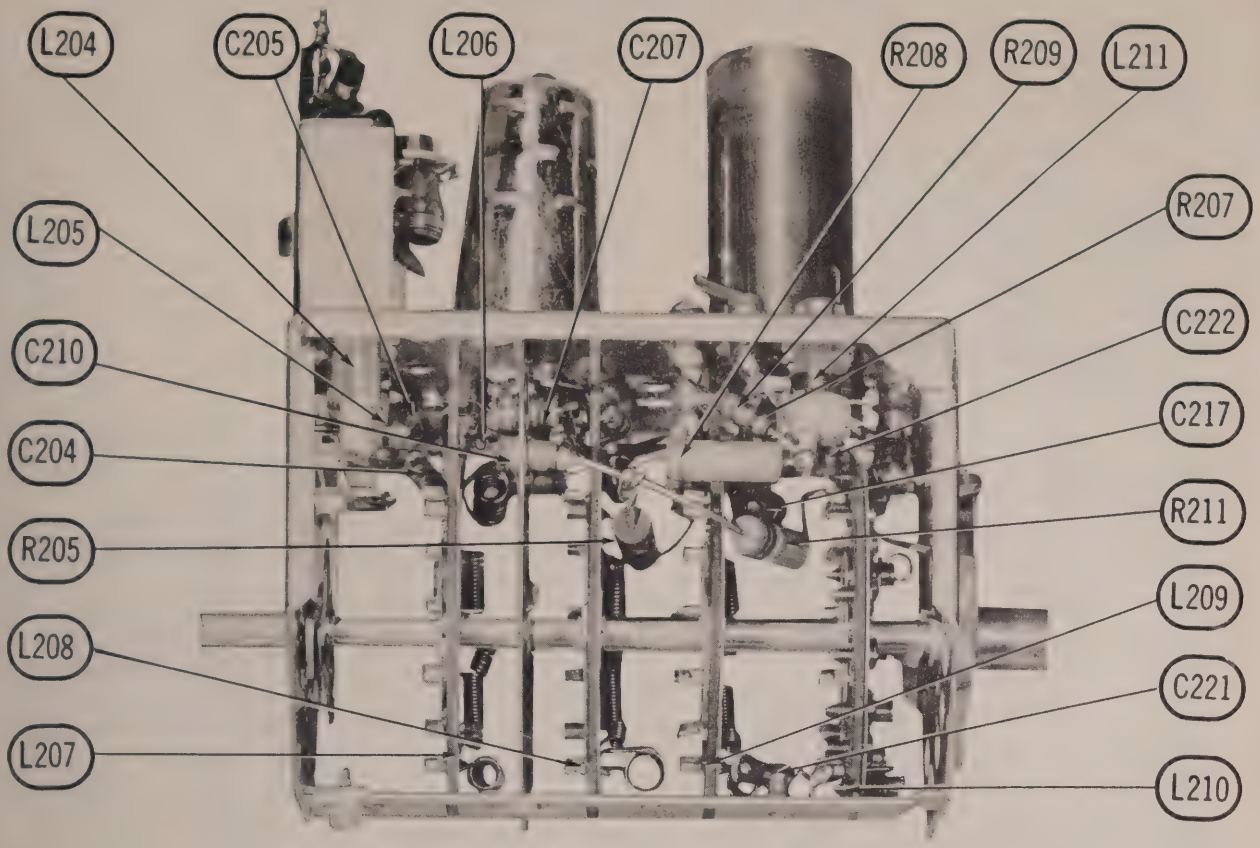
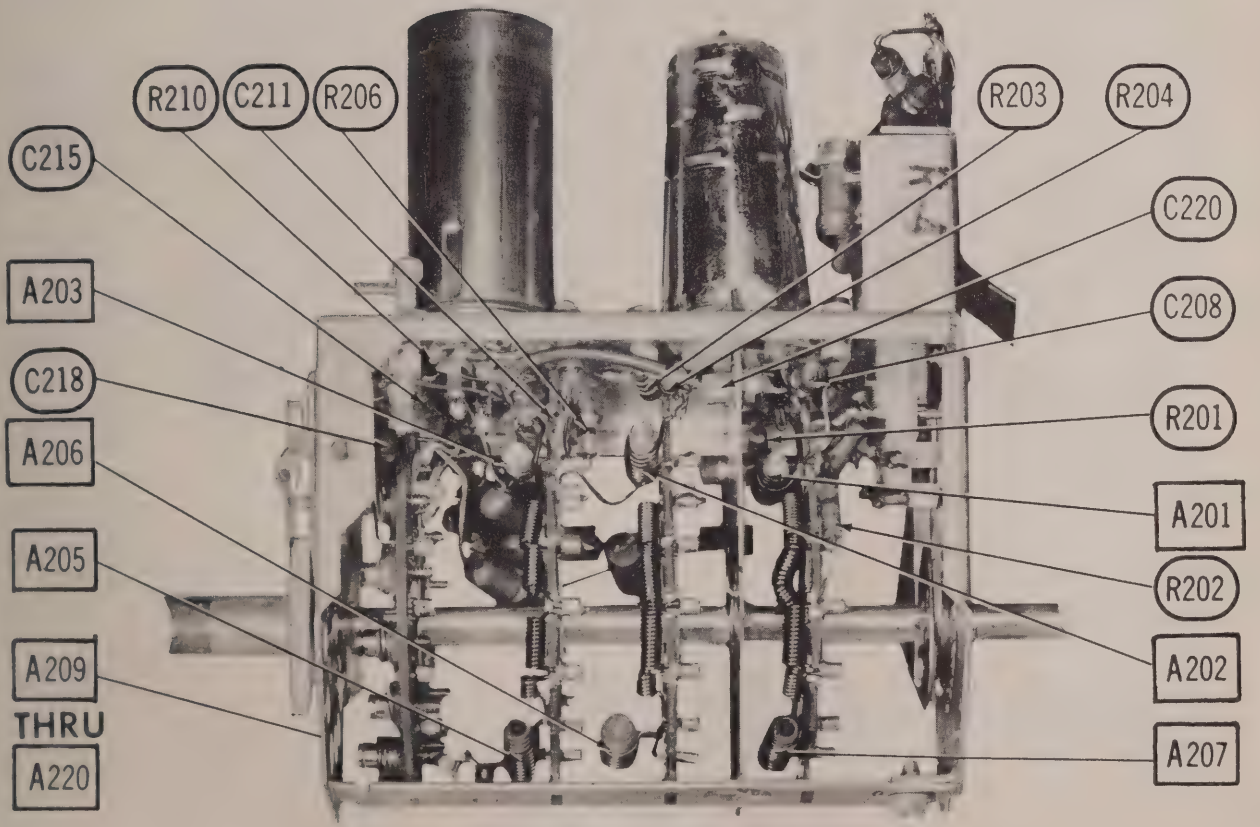


FIG. 203



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

TUNER ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.

VHF RF AND MIXER ALIGNMENT FOR TUNER #T68B

Connect the negative lead of a 1.5 volt bias supply to point Ⓣ. Positive to chassis.
Connect a 10 to 20mmf capacitor across the Mixer Plate Coil.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	210MC	13	Vert. Amp. thru 10K to point Ⓤ. Low side to chassis.	A201	Adjust for maximum gain and symmetry of response similar to Fig. 201.
2.	"	"	"	210MC 216MC	"	"	A202, A203	Adjust for maximum gain and symmetry of response similar to Fig. 201 with markers as shown. Adjust A202 to set marker level and A203 for proper tilt.
3.	"	"	177MC	174MC	7	"	A204	Adjust for correct tilt at top of curve. Curve should be centered in passband and symmetrical. This compensates for channel 13 adjustment's effect on channel 7. (See Fig. 202).
4.	"	"	85MC	82MC 85MC 88MC	6	"	A205, A206, A207	Turn A205 counter clockwise until a single peak appears. Adjust A206 until the single peak falls at 85MC. Adjust A207 for maximum amplitude and symmetry of single peak. Retouch A205 thru A207 for response similar to Fig. 203.
5.	"	"	Not used	43.5MC (400∿ 30% AM Mod)	4	Across video detector load.	A208	Adjust for MINIMUM 400∿ indication.

VHF OSCILLATOR ALIGNMENT FOR TUNER #T68B

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator outut lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning to the center of its range.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	209.75MC (400∿ AM)	13	Across video detector load.	A209	Adjust for MINIMUM 400∿ indication.
			203.75MC	12		A210	
			197.75MC	11		A211	
			191.75MC	10		A212	
			185.75MC	9		A213	
			179.75MC	8		A214	
			173.75MC	7		A215	
			81.75MC	6		A216	
			75.75MC	5		A217	
			65.75MC	4		A218	
			59.75MC	3		A219	
			53.75MC	2		A220	

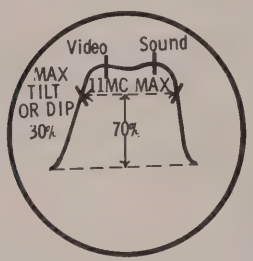
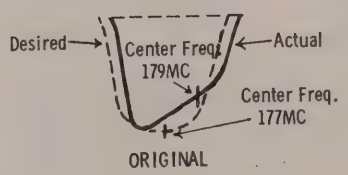


FIG. 201



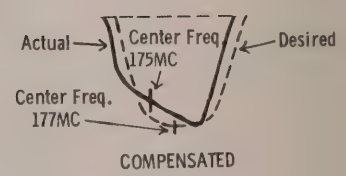


FIG. 202

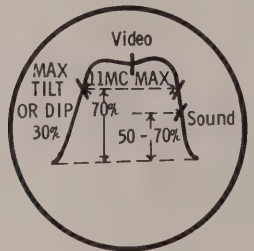
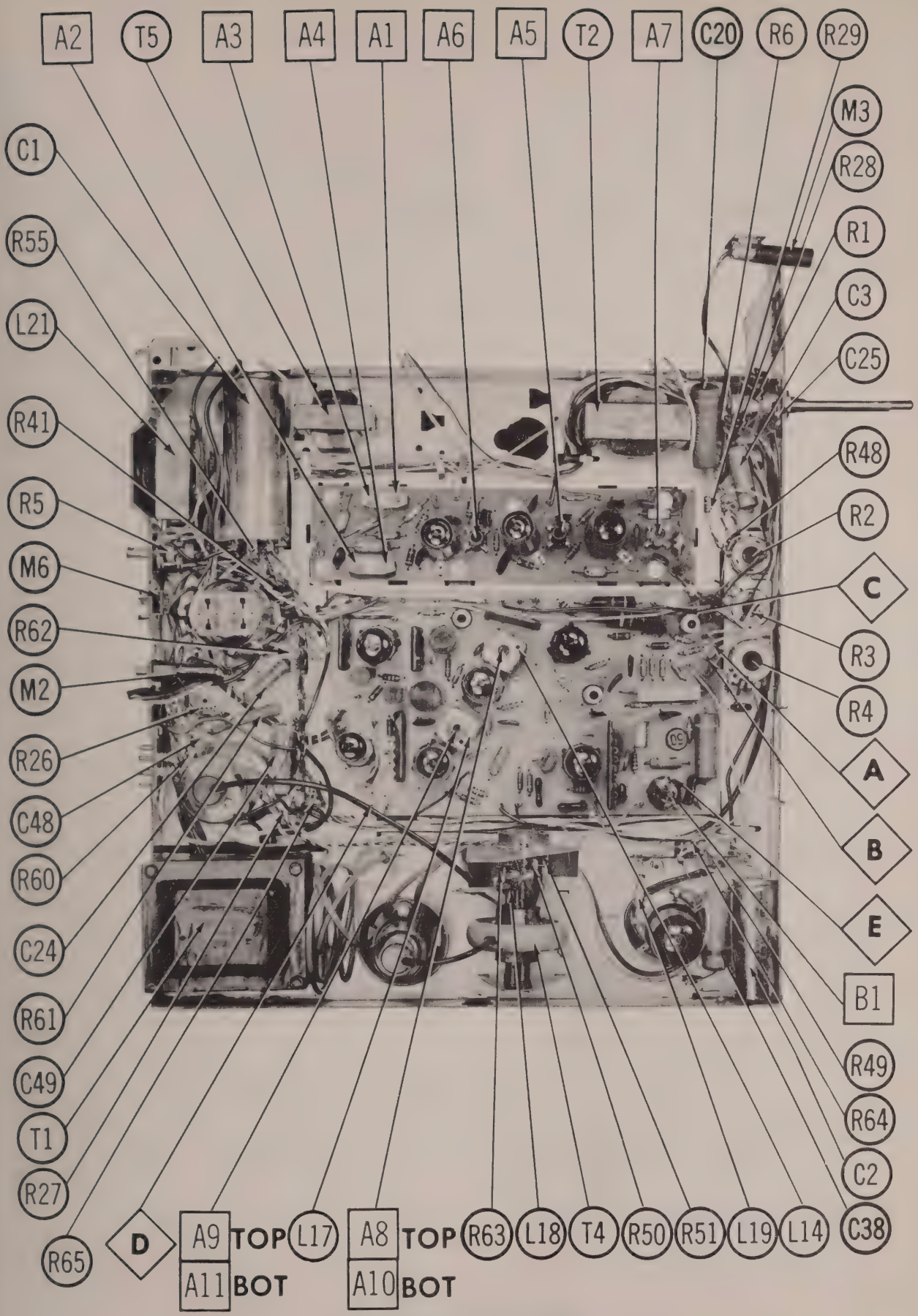


FIG. 203



CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6DE6	260K	47Ω	0Ω	.1Ω	††660Ω	††660Ω	0Ω		
V2	6DE6	260K	68Ω	0Ω	.1Ω	††330Ω	††330Ω	0Ω		
V3	6AM8	220Ω	.2Ω	††1000Ω	.1Ω	0Ω	††1000Ω	.2Ω	3900Ω	0Ω
V4	6AW8A	0Ω	2.4meg	†60K	.1Ω	0Ω	82Ω	470K	††0Ω	†8200Ω
V5	6BY8	5.2Ω	0Ω	††147K	.1Ω	0Ω	††27K	††27K	††27K	330Ω
V6	6T8	70K	70K	120K	.1Ω	0Ω	1.5meg	0Ω	10meg	†270K
V7	6CU5	¶	550K	0Ω	.1Ω	550K	†0Ω	†170Ω		
V8	6CS7	‡8000Ω	NC	2.2meg	0Ω	.1Ω	• ‡3meg	100K	• 30K	• 950Ω
V9	12AU7A	†18K	5.5meg	1200Ω	.1Ω	.1Ω	†50K	• 110K	1200Ω	0Ω
V10	6DQ6A	0Ω	0Ω	NC	†14K	1meg	NC	.1Ω	0Ω	TOP CAP ‡44.5Ω
V11	6AX4GT	NC	NC	¶	NC	†1.7Ω	NC	.1Ω	0Ω	
V12	1B3GT		PINS	1 THRU 8	HAVE	INFINITE	RESISTANCE			TOP CAP ‡372Ω
V13	5U4GB	NC	¶	NC	33Ω	NC	35Ω	NC	¶	
V14	21CMP4	0Ω	1meg	PIN 6 ‡7000Ω	PIN 10 ‡7000Ω	PIN 11 • 180K	PIN 12 .1Ω			
V201	6BC8	†1900Ω	230K	INF	.1Ω	0Ω	INF	220K	0Ω	0Ω
V202	6X8	0Ω	10K	†100K	0Ω	.1Ω	0Ω	100K	†76K	†68K
ITEM	TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

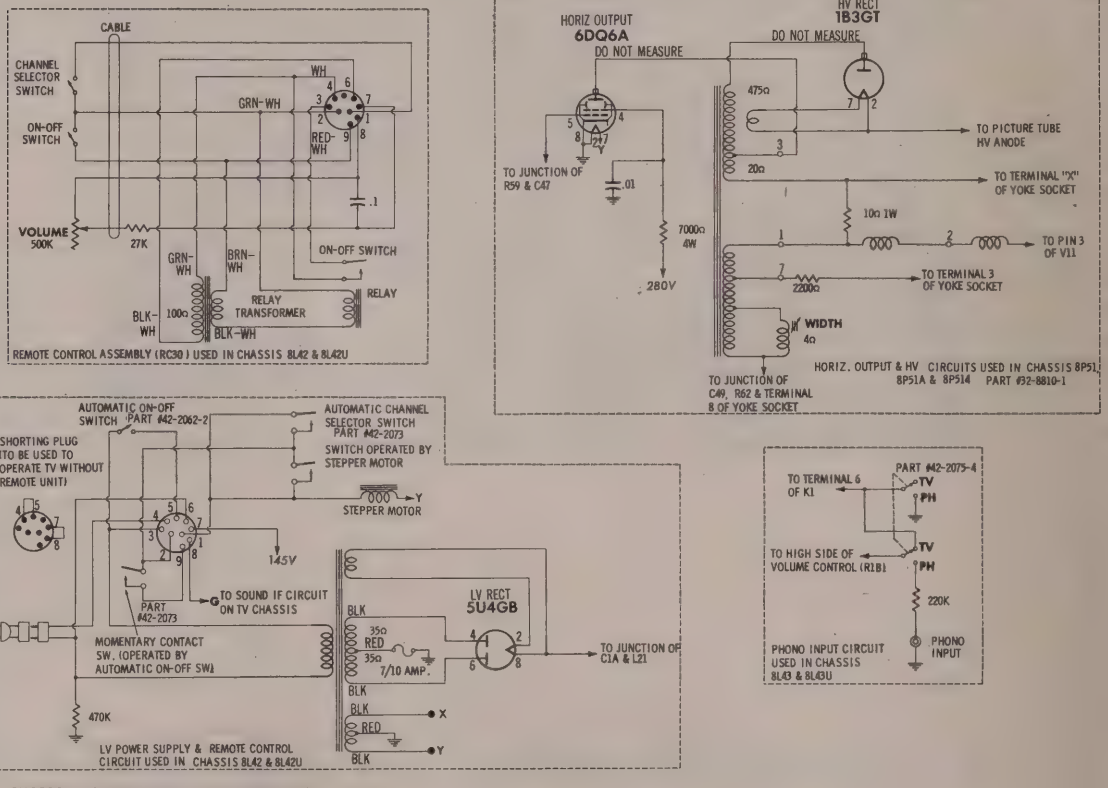
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 280V SOURCE.

†† MEASURED FROM 145V SOURCE.

‡ MEASURED FROM PIN 3 OF V11.

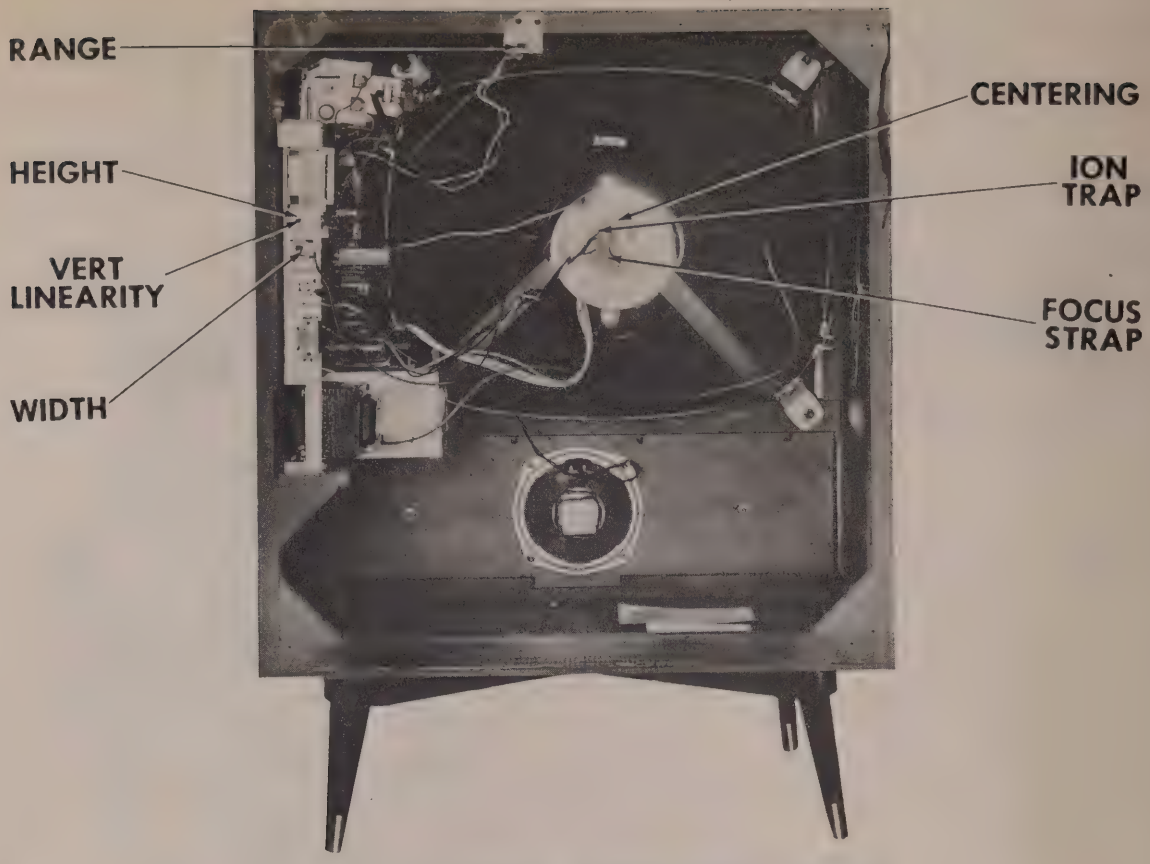
NC NO CONNECTION.



A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

ALTERNATE CIRCUITS



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a station, preferably with a test pattern.

Turn the Contrast counter clockwise until the blanking is visible. Set the Horizontal Hold to the center of its range.

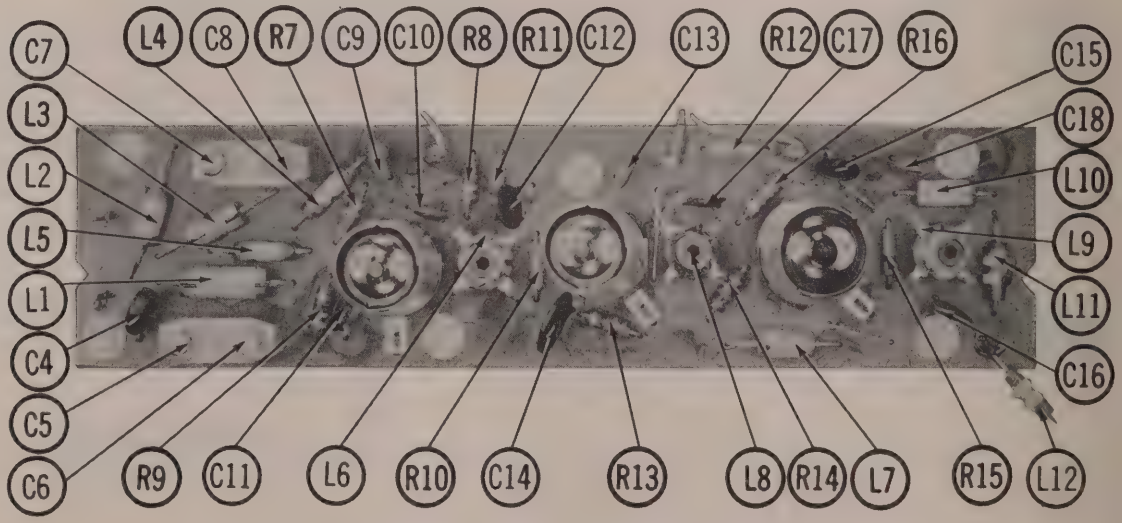
Short out the Horizontal Frequency coil (L20) by connecting a .1mfd capacitor from point (E) to chassis.

Adjust the Auxiliary Horizontal Hold (R4B) until equal blanking appears on either side of the raster. This can be checked by moving the centering device to one side and then the other.

Remove the shorting capacitor. Adjust the Horizontal Frequency slug (B1) until the picture is brought into sync with equal blanking on either side of the raster.

Check the pull-in by turning the Horizontal Hold control until the picture falls out of sync. Slowly bring the picture back into sync. Pull-in should occur with $2\frac{1}{2}$ to 3 bars present. If pull-in is not correct, repeat above adjustments.

The width is adjustable by means of a switch located on the rear of the chassis.



VIDEO IF PRINTED BOARD

SET 399 FOLDER 3

RCA VICTOR CHASSIS
CTC7A, B, C, D, E, F

MODEL 21CD8725 (Ch. CTC7A)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21CD8725, 21CD8727, 21CD8775, 21CD8776, 21CD8777	CTC7A
		21CD8725U, 21CD8727U, 21CD8775U, 21CD8776U, 21CD8777U	CTC7B
		21CD8865, 21CD8866, 21CD8867, 21CD8885, 21CD8886, 21CD8888, 21CD8906, 21CD8907	CTC7C
		21CD8865U, 21CD8866U, 21CD8867U, 21CD8885U, 21CD8886U, 21CD8888U, 21CD8906U, 21CD8907U	CTC7D
		21CD8926, 21CD8927, 21CD8949	CTC7E
		21CD8926U, 21CD8927U, 21CD8949U	CTC7F
MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N.J.		
TYPE SET	Color Television Receiver		
TUBES	Twenty-eight		
POWER SUPPLY	110-120 Volts AC, 60 Cycle	RATING 370 Watts, 3.5 Amp. @ 117 Volts AC	
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

INDEX

Alignment Instructions 6, 7
Block Diagram 3
Disassembly Instructions 29
Miscellaneous Adjustments 4
Parts List and Descriptions (Main) ..... 13 thru 17
Parts List and Descriptions (Tuner) 20
Photographs
- Cabinet-Rear View 29
- Capacitor & Alignment Identification 22, 23
- Chassis-Top View 9
- HV Compartment 17
- Printed Boards 12, 24, 26, 27, 28
- RF Tuner 25, 26
- Resistor & Inductor Identification 5, 8

Resistance Measurements 10
Schematic (Alternate Tuner) 21
Schematic (Tuner) 19
Schematic (TV) 2
Tube Placement Chart (Bottom View) 18
Tube Placement Chart (Top View) 11

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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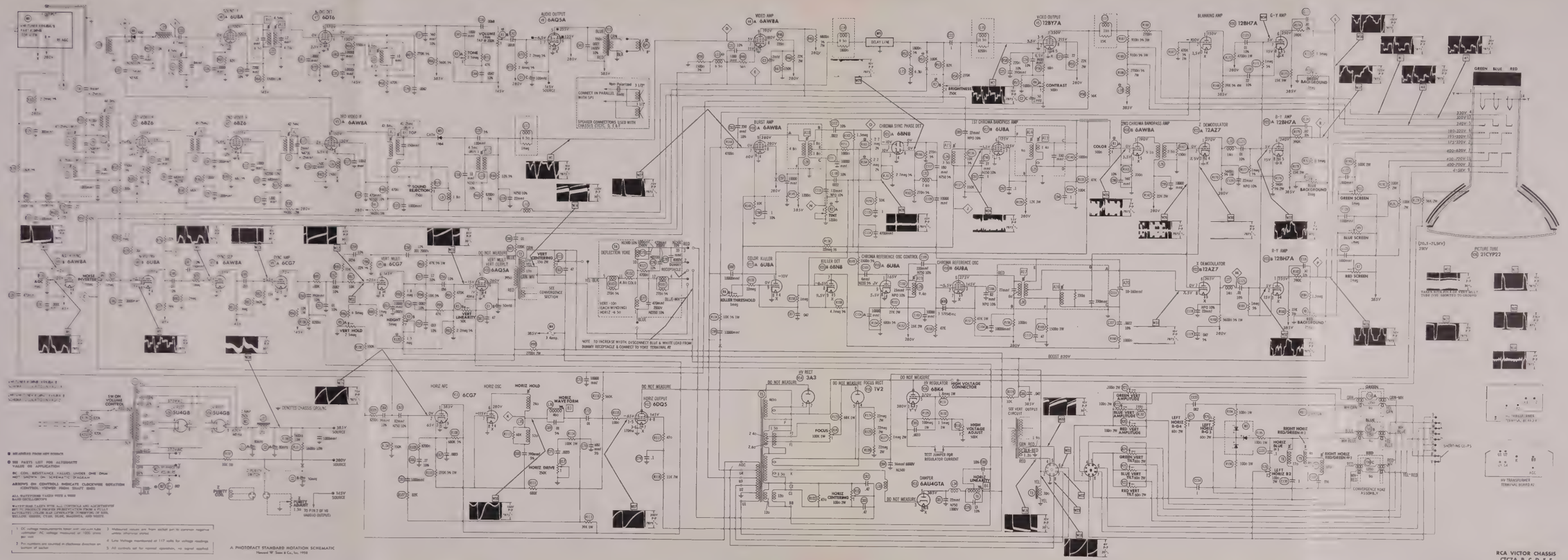
SET 399 FOLDER 3


A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958
RCA VICTOR CHASSIS
CTC7A, B, C, D, E, F

BLOCK DIAGRAM

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a 0-500ma meter in series with the cathode circuit of the horizontal output tube (V12). Connect .47mfd capacitor across the ma meter terminals.
Connect an 0-1ma meter in series with the cathode circuit of the HV Regulator (V16) by removing the test jumper and connecting the meter in its place.
Connect the high side of the scope thru a low capacity probe to point (K) .
Low side to chassis. Connect the DC probe of the VTVM thru a high voltage probe to the high voltage rectifier "cup". Common to chassis.
Set the Focus control (R14) fully counter clockwise. Set the Horizontal Drive (R17) at the center of its range. Set the high voltage adjustment (R18) at two-thirds clockwise rotation.
Tune the receiver to a station signal and synchronize the picture.
Adjust the Horizontal Waveform slug (B3) for waveform similar to Fig. 10 with the round and sharp peaks at equal amplitudes. Keep the picture in sync with the Horizontal Hold during this adjustment.
Adjust Horizontal Linearity slug (B4) for MINIMUM current indication on the 500ma meter.
Adjust the Horizontal Drive (R17) for maximum current without drive lines, but not to exceed 210ma.
Adjust the High Voltage adjustment (R18) for 22.5KV on the VTVM. Check the current reading on the meter. It must not exceed .8ma (18 watts).

AGC ADJUSTMENT

Connect a scope to point (E) thru a 10K resistor. Adjust the AGC control (R16) for 10 volts peak to peak on the scope.

NOISE INVERTER ADJUSTMENT

Connect the vertical amplifier of the scope to point (L) . Low side to chassis.
Turn the Noise Inverter Control (R6) fully counter clockwise. Turn R6 clockwise and observe scope, when the sync appears to be clipped turn counter clockwise until clipping just disappears.

COLOR AFC ALIGNMENT

Connect a Color Bar generator across the antenna terminals and adjust the receiver for color reception.
Connect the vertical amplifier of the scope to point (M) . Low side to chassis.
Connect the DC probe of the VTVM thru a 470K resistor to pin 7 (plate) of the 6U8A (V17). Common to chassis.
Set the Tint control (R2) to the center of its range.
Preset A20 one-half turn from tight.
Turn the Killer control (R48) fully counter clockwise.
Connect a short clip lead from point (N) to chassis.
Adjust A16 and A17 for maximum deflection on the VTVM. If the Chroma Reference Oscillator is not running, no reading will be obtained. In which case, adjust A19 to start the oscillator and then adjust A16 and A17.
Move the VTVM connection to point (J) . Adjust A18 for maximum deflection on the VTVM. Make sure the oscillator is running and locked in.
Connect a clip lead from point (O) to chassis. Adjust A19 until the color bars stand still or drift slowly.
Move scope connection to point (P) .
Remove the jumper from point (O) . Observe the bar pattern on the scope and retouch A18, if necessary obtain proper response curve similar to the R-Y signal in Fig. 11 with equal change when rotating the Tint control from one end to the other.
After the above adjustment, return the Tint control to the nominal setting. Move the connection of the Vertical amplifier of the scope to point (R) . If necessary, retouch A16 for correct B-Y signal as shown in Fig. 11.
Connect a clip lead from pin 7 (grid) of the Burst amplifier (V18) to chassis.
Connect a short clip lead from pin 9 (grid) of the Color Killer (V17) to chassis.
Adjust A20 for zero volts on the VTVM. A positive and negative reading will be obtained on either side of the correct setting. Recheck the setting of A16 by observing B-Y waveform. Recheck setting of A20.
Check the G-Y waveform by connecting the scope to point (S) and compare to the G-Y waveform in Fig. 11.
Remove all clip leads and test equipment. Switch to an unused channel and adjust the Killer Threshold control to the point where the color just disappears from the noise pattern on the screen.

PRELIMINARY CONVERGENCE ADJUSTMENTS

Connect the RF output of a white dot generator to the antenna terminals. Preset all red, green and blue horizontal and vertical convergence controls and coils to mid-range.
Adjust the red, green and blue convergence magnets and the lateral magnet to produce a white dot in the center of the screen. Keep the receiver in sharp focus while making this adjustment. Switch the generator to standby position.

COLOR PURITY ADJUSTMENTS

If necessary, demagnitize picture tube and associated components.
Set the red tabs of the purity magnet together. Set the edge purity magnets so that the two magnets are in the same relative position one above the other.
Loosen the yoke clamp and slide the yoke to the rear as far as possible.
Shunt test points (R) and (S) to chassis thru individual 100K resistors.
Slide the purity magnet around the neck of the picture tube and at the same time spread the tabs apart to produce a uniform red screen area at the center of the screen.
Move the yoke forward and adjust for best overall red screen without neck shadow. Adjust so that any color impurity occurs at the extreme edges of the raster.
Color shading around the edges of the screen is corrected by adjusting the "Z" purity control (not in some models) and the edge purity magnets.
Start adjustment with the "Z" purity control in the center or zero position. To find the center position, rotate the control back and forth over its range. A distinct detenting of the control will be felt at about center range. This is the zero point of the control.
Advance the "Z" purity control SLIGHTLY either right or left from the zero position and at the same time push in on the control shaft. Check the raster to see if the edge purity has been improved. If it has improved, but further correction is required, advance the control even further in the same direction and push in on the shaft. Continue until the best edge purity is obtained. If the shading increased, turn the control to the other side of zero and repeat the above procedure for best edge purity. Too much correction may be noticed if the control was turned too far, in which case it will be necessary to turn the control SLIGHTLY past zero in the opposite direction and push in on the button. After best purity is obtained, return the control to center position.
Adjust the screen controls for a white raster and adjust the edge purity magnets for best edge purity. Maximum correction is obtained with the open ends of the magnets 180 degrees apart. Rotate both magnets simultaneously to achieve the desired results.

VERTICAL CONVERGENCE ADJUSTMENTS

Recheck the "Preliminary Convergence Adjustments" for correct settings of the red, blue and green magnets, and lateral magnet to produce a white dot in the center of the raster.
Loosen the two screws holding the convergence board, slide the board to the left and remove. Fasten the board to the two screws provided on the top rail of the cabinet with the controls facing forward so that convergence adjustments may be performed from the front of the receiver. Slots are provided in the bottom edge of the board for this mounting.
Switch the dot generator to vertical white bars and adjust the red and green Tilt controls for equal displacement of the center bar at the top and bottom. Adjust red and green vertical amplitude controls until the center red and green lines are straight,
Gradually reduce the amplitudes to converge the red, green and blue along the center lines, retouching the red and green vertical tilt controls to keep the lines parallel. The center line should converge to produce a white vertical line from top to bottom or should show SLIGHT displacement of the red at one side and the green at the other with all lines parallel from top to bottom. Readjust the convergence magnets to superimpose the parallel lines making a white line from top to bottom.
Switch the generator to horizontal bars. Referring to the top and bottom bars as a reference, adjust the blue vertical tilt and amplitude controls for equal downward displacement of the blue bar from the extreme top and bottom lines at the top center and bottom center of the raster. Reduce the blue vertical amplitude control to converge all lines at the center, retouching the blue vertical tilt SLIGHTLY, if necessary making all white lines at the center from top to bottom.

HORIZONTAL CONVERGENCE ADJUSTMENTS

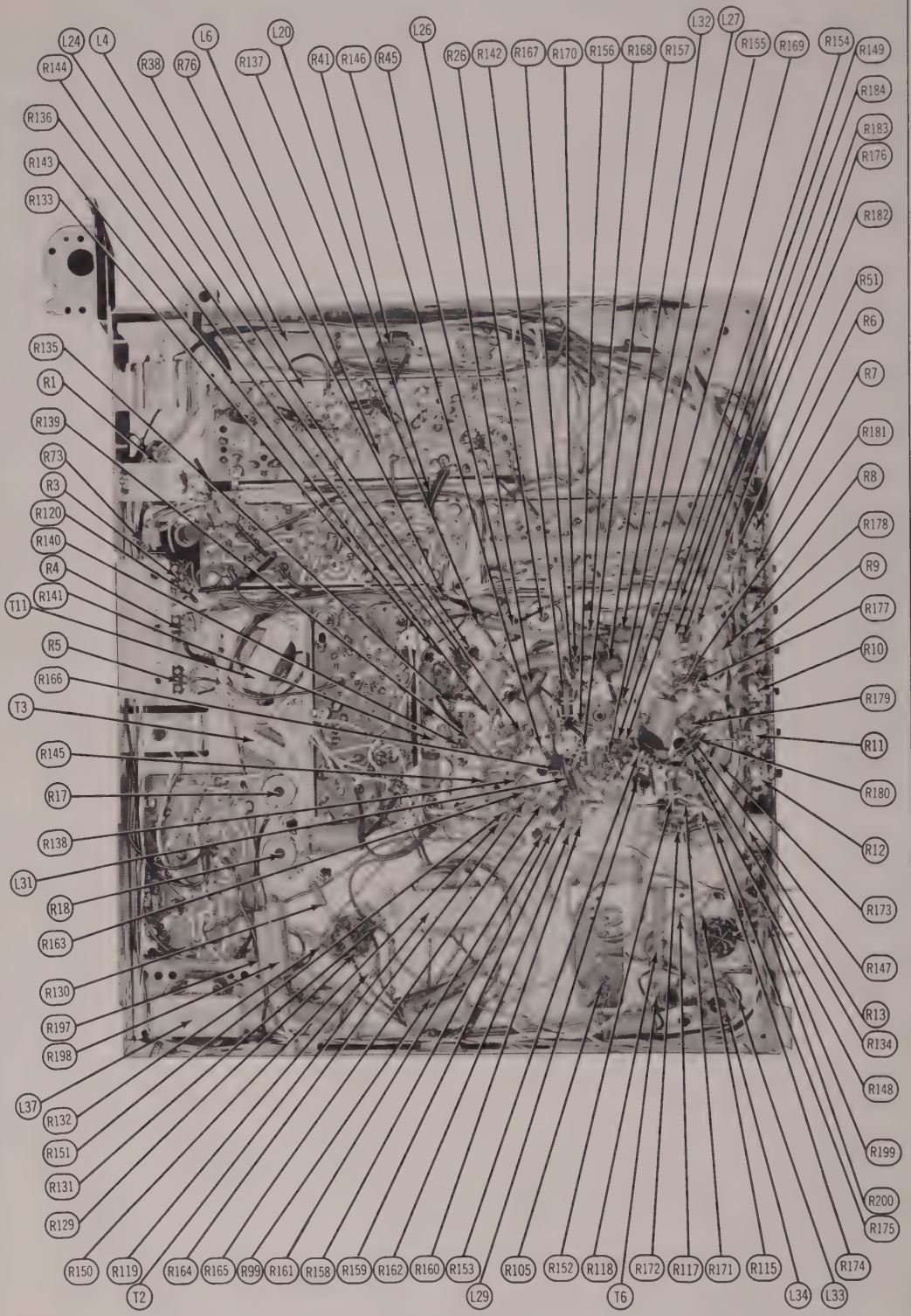
Switch the generator to crosshatch pattern. If necessary, retouch convergence magnets to produce good convergence at the center of the screen.
Adjust coil B-1 so that the blue horizontal line at the right center of the raster is a straight line.
Adjust control B-2 for a straight blue line at the left side of the raster. If a straight line cannot be obtained, move the clip on the back of convergence control panel from pins "W" and 4 to 4 and "G".
Adjust R-G-1 to make the vertical lines at the right side of the raster converge.
Adjust R-G-2 to make horizontal red and green lines at the right side of screen converge. Readjust B-1 to make the blue line at the right center fall on converged red and green lines. Retouch R-G-1 for convergence of vertical lines at the right side.
Adjust control R-G-3 to make vertical lines at the left side converge.
Adjust control R-G-4 to make the red and green horizontal lines at the left side of the screen converge.
If it was impossible to achieve convergence at the left side with either R-G-3 or R-G-4, move the clip from terminal 8 and "G" to 8 and "V" and move the clip from 12 and "G" to 12 and "W". Now repeat adjustment of R-G-3 and R-G-4 and sufficient range will be obtained to converge in each case.
After readjusting R-G-4, repeat adjustment of R-G-3 to compensate for any interaction. Readjust B-2 to make the blue lines at the left center fall on the converged red and green lines.
The picture or pattern should now show proper convergence over the entire screen.

GRAY SCALE ADJUSTMENTS

Set the screen controls fully clockwise and the background controls fully counter clockwise. Turn the brightness and contrast controls fully counter clockwise after tuning in a station signal. Use a program which displays the full range of contrast from low lights to high lights.
Advance the brightness control to obtain a picture just SLIGHTLY below normal brightness level, the control will usually fall at approximately two-thirds from full counter clockwise. Be careful not to advance the brightness too close to overload. If the picture appears to be too dim at the above setting, advance the contrast control SLIGHTLY.
Adjust red, green and blue background controls to produce white in the high light areas of the picture.
One screen control will be left at maximum clockwise rotation. Which one is determined as follows:

1. Yellow in Lowlight Areas - Blue screen should remain at maximum.
2. Cyan in Lowlight Areas - Red screen should remain at maximum.
3. Magenta in Lowlight Areas - Green screen should remain at maximum.
4. Red, Green or Blue in Lowlight Areas - This condition indicates that the screen control of the color appearing is set too high and must be reduced from maximum. Turn this screen control down slowly. One of the following conditions will occur:
   a. If the picture becomes gray the two remaining screens should remain at maximum setting and the corresponding background control for the screen that was turned down should be adjusted, with the brightness turned to normal brightness level, to produce a white in the highlight areas. The raster should now stay white (track) at all brightness levels. Recheck at low level and if necessary, retouch SLIGHTLY the screen control that was previously turned down to achieve gray in the lowlight areas. No further adjustments are required and the balance of this procedure does not apply.
   b. Yellow in Lowlight Areas - Blue screen should remain at maximum.
   c. Cyan in Lowlight Areas - Red screen should remain at maximum.
   d. Magenta in Lowlight Areas - Green screen should remain at maximum.

From this point on do not adjust either the screen or background control for the color which remains at maximum position. THIS IS IMPORTANT.
Turn the brightness to a low level and adjust the two remaining screen controls to produce a gray picture in the lowlight areas.
Advance the brightness to normal brightness level and adjust the two remaining background controls for white in the highlight areas.
Check for proper gray scale at all brightness levels. It may be necessary to retouch SLIGHTLY the two screen controls at lowlight and the two background controls at highlights, remembering not to adjust either the screen or background controls for the color set at maximum.



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

Remove fuse (M4) from the circuit and connect a 1500Ω 100W resistor from the B plus side of fuse holder to chassis. This will disable the high voltage circuit.

VIDEO IF ALIGNMENT

Connect the negative lead of a 6 volt bias supply to point (A). Positive to chassis.
Connect the negative lead of a 15 volt bias supply to point (B). Positive to chassis.
Connect the negative lead of a 7 volt bias supply to point (C). Positive to chassis.
Connect the negative lead of a 7 volt bias supply to pin 5 of V20. Positive to chassis.
Connect a clip lead from point (D) to chassis. Preset sound reject (R19) at 70% clockwise rotation. Video IF shield must be in place during alignment.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V20J). Low side to chassis.	43. 6MC (Unmod)	6	DC probe thru 10K to point (D). Common to chassis.	A1	Adjust for maximum deflection. Use peak with core nearest printed board and of coil. Maintain VTVM reading of 1.5 volts by adjusting signal generator output.
4.	"	"	42. 5MC	"	"	A2	"
3.	"	"	45. 75MC	"	"	A3	"
4.	"	"	44. 0MC	"	"	A4	"
5.	"	"	44. 0MC	"	"	Mixer Plate Coil	Adjust for maximum deflection. Use only enough signal generator output to provide a usable indication on VTVM.
6.	"	"	41. 25MC	"	"	A5, R19	Adjust A5 and Sound Reject (R19) simultaneously for MINIMUM deflection with slug away from chassis. Reduce bias at point (A) as necessary for sufficient indication.
7.	"	"	47. 25MC	"	"	A6	Adjust for MINIMUM deflection with slug away from chassis.
8.	"	"	41. 25MC	"	DC probe thru 10K to point (D). Common to chassis.	A7	Increase bias at point (A) to -6 volts. Adjust A7 for MINIMUM deflection with slug away from chassis.

OVERALL VIDEO IF RESPONSE CHECK

Connect bias as under "Video IF Alignment".
Connect a .001mfd in series with a 180Ω resistor from pin 5 (plate) of 6BZ6 (V2) to chassis with the resistor to chassis.
Connect a 1000mmf capacitor across the scope leads.
The video IF shield must be in place during alignment. Connect DC lead of VTVM to point (D). Common to chassis. (Use negative scale on VTVM).
Use 10MC sweep unless otherwise noted.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	
9.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V20J). Low side to chassis.	45MC	41.17MC 45. 75MC	4	Vert. Amp. thru detector probe (Fig. 1) to pin 5 (plate) of 6BZ6 (V1). Low side to chassis.		Set sweep output for .1 volt peak to peak on scope. Retouch Mixer Plate Coil and A4 for maximum gain and symmetry of response similar to Fig. 2.
10.	"	"	"	41. 25MC	"	"		Retouch A7 to place marker in trap notch as in Fig.2.
11	"	"	"	47. 25MC	"	"		Retouch A7 to place marker in trap notch as in Fig. 2. Repeat step 9.
12.	Remove the capacitor and resistor load from 6BZ6 (V2). Increase bias at point (A) to -6 volts.							
13	[illegible]	High side to ungrounded tube shield floating over mixer-osc. tube (V20J). Low side to chassis.	45MC	41. 65MC 42. 17MC 42. 75MC 45. 0MC 45. 75MC	4	Vert. Amp. thru 10K to point (D). Low side to chassis.		Retouch A1, A2 and A3 for response similar to Fig. 3 with markers as shown. A1 controls tilt, A2 affects 42.17MC side of curve and A3 affects 45. 75MC side. Use 3 volts peak to peak on scope.
14.	Connect a .001mfd capacitor from point (D) to chassis.							
15.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V20J). Low side to chassis.	45MC	41. 25MC	4	Vert. Amp. thru 10K to point (D). Low side to chassis.		Retouch A5 and R19 to place 41.25MC marker in trap notch, if necessary.
16.	Fig. 4	Across VHF antenna terminals thru matching network (Fig. 4).	All VHF Channels Separately	43.17MC 45. 0MC 45. 75MC	All VHF Channels Separately	"		Decrease bias at point (A) to -3 volts. SLIGHTLY retouch A1, A2 and A3 to correct for any overall tilt that is approximately the same on all channels. Repeat step 15.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
17	001mfd	High side to point (B) Low side to chassis.	4. 5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector (Fig. 5) to pin 1 (grid) of 6DT6 (V7). Common to chassis. Connect scope across voice coil of speaker.	A8	Adjust for maximum deflection. Set generator output for 1 volt on VTVM. Use peak with slug nearest top of coil form.
18.	"	"	"	"	"	A9, A10	Adjust for maximum deflection. Set generator output for 1 volt on VTVM. Peak with maximum core separation. Repeat steps 17 and 18.
19	Disconnect the diode test circuit and VTVM. Turn off generator and tune in strongest signal in area. Adjust volume control for normal volume. Set All so that core is flush with top of form. Observe scope and listen to the sound. Change bias at point (A) to zero. Adjust All clockwise to a peak. Continue clockwise to second louder peak and adjust for maximum output at this second peak.						

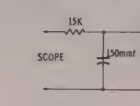


FIG. 1

FIG. 2

FIG. 3

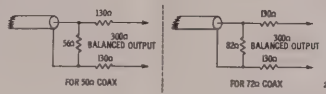


FIG. 4

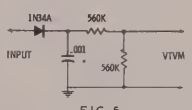


FIG. 5

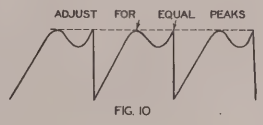


FIG. 10

ALTERNATE SOUND IF ALIGNMENT USING FM GENERATOR

Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
17.	.001mfd	High side to point (B) Low side to chassis.	4. 5MC (Unmod)	Any non-interfering channel	DC probe thru diode detector (Fig. 5) to pin 1 (grid) of 6DT6 (V7). Common to chassis	A8	Adjust for maximum deflection. Set generator for 1 volt on VTVM. Use peak nearest top of coil form.
18.	"	"	"	"	"	A9, A10	Adjust for maximum deflection. Set generator for 1 volt on VTVM. Peak with maximum core separation. Remove VTVM and detector test circuit.
19.	"	"	4.5MC (400% FM Mod. 15KC Swp)	"	[illegible] Across speaker voice coil	All	Set All so that core is flush with top of coil form. While observing scope and listing to sound adjust All clockwise to a peak. Continue clockwise to a second louder peak and adjust All for maximum at this second peak. Decrease signal to MINIMUM usable signal and retouch A8 for symmetrical breakout similar to Fig. 6

4.5MC TRAP ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
20.	001mfd	High side to point (B) Low side to chassis.	4. 5MC (400% AM Mod)	Any non-interfering channel	USE SCOPE Vert. Amp. thru detector probe to pin 5 (plate) of 6U8A (V17). Low side to chassis.	A13	Adjust for MINIMUM 400% indication on scope

CHROMA BANDPASS ALIGNMENT

Connect the negative lead of a 7 volt bias supply to point (C). Positive to chassis.
Connect a short clip lead from point (D) to chassis.
Turn the color control fully clockwise
For steps 22 and 24 connect separate marker generator to ungrounded tube shield of the 1st. Chroma Bandpass Amp. (V17). Low side to chassis to provide 4. 08MC and 3. 58MC markers.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
21.	.1mfd	High side to pin 2 (grid) of 6U8A (V17). Low side to chassis.	3. 58MC (3-83MC Swp)	3. 58MC 4. 08MC	Any non-interfering channel	Vert. Amp. thru detector probe to pin 2 (grid) of 1AAZ7 (V24). Low side to chassis.	A15, A16	Adjust for response similar to Fig. 7.
22.	Turn the brightness, contrast and noise threshold controls fully counter clockwise. Connect a 330Ω resistor and a 4mfd capacitor to series from the plate (pin 6) of 6U8A (V17) to chassis							
23.	Direct	High side to ungrounded tube shield floating over mixer-osc. tube (V20J). Low side to chassis.	45MC (10MC Swp)	45. 75MC 4. 08MC 3. 08MC	Any non-interfering channel	Vert. Amp. thru detector probe to pin 2 (grid) of 1AAZ7 (V24). Low side to chassis.	A18	Remove clip lead between point (D) and chassis. Adjust A18 for response similar (Fig. 8). Peak with core nearest chassis end of coil form.
24.	"	"	"	"	"	"		Remove resistor and capacitor from pin 6 of V17. Check for response similar to Fig. 9. If necessary, retouch A13 for flat response.

TUNER ALIGNMENT

This portion of the receiver has been properly aligned at the factory and is very stable. Alignment of this portion should not be required in the field.

FIG. 6

FIG. 7

FIG. 8

FIG. 9

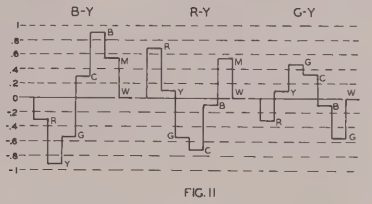
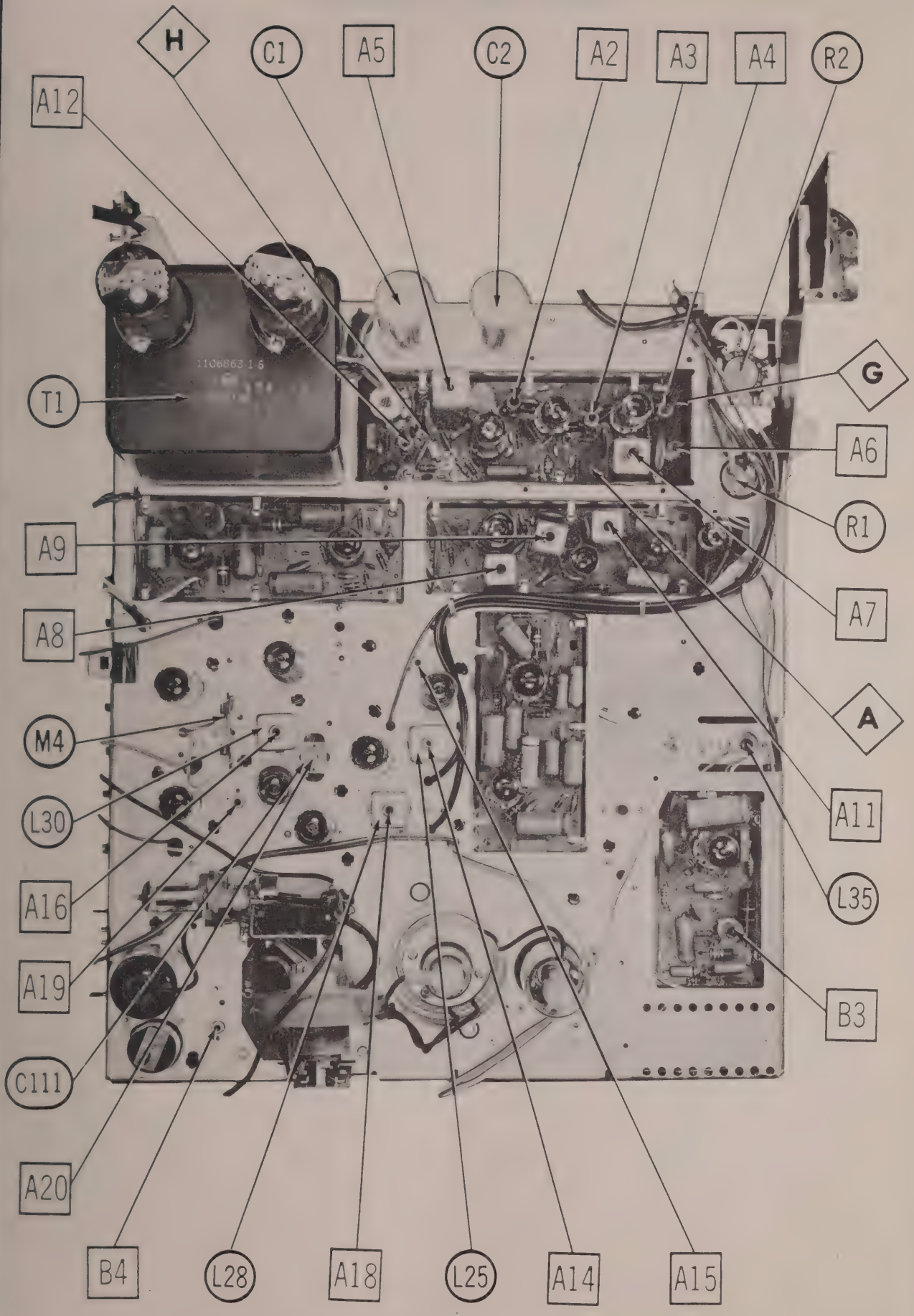


FIG. 11

RCA VICTOR CHASSIS CTC7A, B, C, D, E, F

FOLDER 3



CHASSIS TOP VIEW

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	100K	47Ω	0Ω	.1Ω	†5400Ω	†5400Ω	0Ω		
V2	6BZ6	100K	68Ω	.1Ω	0Ω	†5400Ω	†5400Ω	0Ω		
V3	6AW8A	0Ω	2.2meg	▪ 1meg	.1Ω	0Ω	150Ω	.2Ω	†6800Ω	†6800Ω
V4	6AW8A	▪ 0Ω	†55K	520K	.1Ω	0Ω	850Ω	5300Ω	†20K	†7600Ω
V5	12BY7A	• 380Ω	350K	0Ω	.1Ω	.1Ω	0Ω	†4300Ω	†23K	0Ω
V6	6U8A	▪ 39K	5.5Ω	▪ 3300Ω	.1Ω	0Ω	▪ 3300Ω	82Ω	900Ω	850K
V7	6DT6	4.7Ω	560Ω	.1Ω	0Ω	†560K	▪ 3300Ω	470K		
V8	6AQ5A	1.2meg	¶	.1Ω	0Ω	†350Ω	†800Ω	1.2meg		
V9	6CG7	▪ 10K	33K	0Ω	.1Ω	0Ω	• ‡4.5meg	• 2.1meg	0Ω	0Ω
V10	6AQ5A	1.8meg	28Ω	0Ω	.1Ω	†3100Ω	†2700Ω	1.8meg		
V11	6CG7	†0Ω	330K	480K	.1Ω	0Ω	†39K	550K	0Ω	0Ω
V12	6DQ5	500K	0Ω	0Ω	†11K	500K	0Ω	.1Ω	†11K	TOP CAP ‡19Ω
V13	6AU4GTA	NC	NC	¶	NC	†22Ω	NC	0Ω	.1Ω	
V14	3A3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP ‡485Ω
V15	1V2	NC	NC	NC	66meg	66meg	NC	NC	NC	•‡78K
V16	6BK4	†20Ω	†11K	NC	NC	• 850K	NC	†11K	NC	TOP CAP INF
V17	6U8A	150K	330K	†13K	.1Ω	0Ω	†13K	0Ω	0Ω	5.5meg
V18	6AW8A	330Ω	100K	†23K	0Ω	.1Ω	10K	4700Ω	†800Ω	†1200Ω
V19	6U8A	†12K	47K	†47K	0Ω	.1Ω	†1800Ω	0Ω	680Ω	2.1meg
V20	12BH7A	†39K	280K	330Ω	.1Ω	.1Ω	†15K	1meg	560Ω	0Ω
V21	6BN8	1.4meg	270Ω	1.5meg	0Ω	.1Ω	270Ω	4.5meg	4.5meg	1.5meg
V22	12AZ7	†6400Ω	2.5Ω	1500Ω	.1Ω	.1Ω	†6400Ω	2.5Ω	1500Ω	0Ω
V23	12BH7A	†15K	1meg	560Ω	.1Ω	.1Ω	†15K	1meg	560Ω	0Ω
V24	5U4GB	NC	¶	NC	12Ω	NC	11Ω	NC	¶	
V25	5U4GB	NC	¶	NC	12Ω	NC	11Ω	NC	¶	
V26	21CYP22	†11K	†280K	• ‡110K	†7200Ω	†3600Ω	†270K	• ‡120K	NC	67meg
		PIN 10 NC	PIN 11 • ‡120K	PIN 12 †270K	PIN 13 †2700Ω	PIN 14 †11K				
V201	6BC8	†5500Ω	500K	600K	0Ω	.1Ω	600K	750K	0Ω	0Ω
V202	6CQ8	†2400Ω	100K	INF	.1Ω	0Ω	INF	0Ω	INF	INF
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING CAN VARY GREATLY, (10K MINIMUM), DUE TO THE CONDITION OF THE ELECTROLYTIC CAPACITOR CONNECTED IN THE ASSOCIATED CIRCUIT.

• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.

† MEASURED FROM 385V SOURCE.

▪ MEASURED FROM 145V SOURCE.

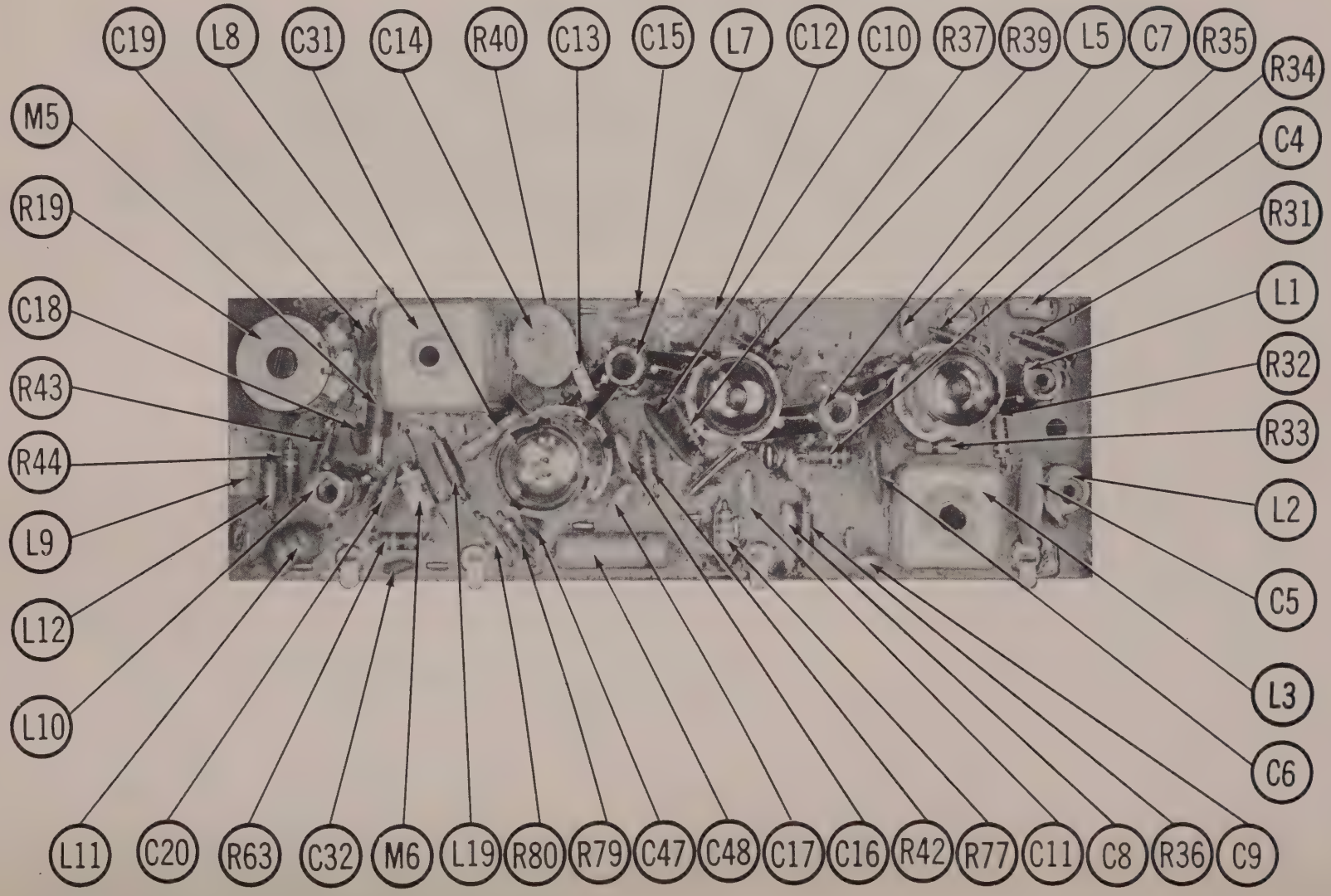
‡ MEASURED FROM PIN 3 OF V13

NC NO CONNECTION

TUBE PLACEMENT CHART

RCA VICTOR CHASSIS
CTC7A, B, C, D, E, F

FOLDER 3



VIDEO IF—PRINTED BOARD

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	1st. Video IF Amp.	6BZ6	
V2	2nd. Video IF Amp.	6BZ6	
V3	3rd. Video IF Amp. - Sync Sep.	6AW8A	
V4	Video Amp. -AGC Keying	6AW8A	
V5	Video Output	12BY7A	
V6	Sound IF Amp. - Noise Inv.	6U8A	
V7	Audio Det.	6DT6	
V8	Audio Output	6AQ5A	
V9	Sync Amp. -Vert. Mult.	6CG7	
V10	Vert. Mult. -Vert. Output	6AQ5A	
V11	Horiz. AFC-Horiz. Osc.	6CG7	
V12	Horiz. Output	6DQ5	
V13	Damper	6AU4GTA	
V14	HV Rectifier	3A3	

ITEM No.	USE	TYPE	NOTES
V15	Focus Rect.	1V2	
V16	HV Regulator	6BK4	
V17	Color Killer - 1st. Chroma Bandpass Amp.	6U8A	
V18	Burst Amp. -2nd. Chroma Bandpass Amp.	6AW8A	
V19	Chroma Ref. Osc. Control-Chroma Ref. Osc.	6U8A	
V20	Blanking Amp. - G-Y Amp.	12BH7A	
V21	Chroma Sync Phase Det. - Killer Det.	6BN8	
V22	"Z" Demodulator - "X" Demodulator	12AZ7	
V23	B-Y Amp. - R-Y Amp.	12BH7A	
V24	LV Rectifier	5U4GB	
V25	LV Rectifier	5U4GB	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SYLVANIA PART No.	
V26	21CYP22		21CYP22	21CYP22	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	450	105219	AFH3-182-80	B0489	FP266	TMD-93	T-740	*R2657
B	■50	350			BR10035	TC1265	TD-100-200	MT-4550	
C	▲100	200							
C2A	▲80	450	105218	AFH4-18-45	B0489	FP266	TMD-93	Q-061	*R2658
B	■50	450			BR505	TC39	TD-50-50	MT-0550	
C	▲50	50							
C3	2	350	78920	PRS450V2	BR245		TD-2-450	MT-4502	TVA-1701

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	9		105298							±.25mmf
C5	150		105299				TCO-150			5%
C6	680		102237							N2200 10%
C7	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C8	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C9	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C10	680		102237							N2200 10%
C11	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C12	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C13	2		105305							N4700 ±.25mmf
C14	470		105302							N1500 10%
C15	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C16	1500		73748	BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C17	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C18	10		105303							N150 10%
C19	22		102793	N750-D1 22	TCN-22	C10Q22U	TC7-22		5TCU-Q22	N750 10%
C20	100		105304		TCZ-100		TCO-100			5%
C21	1000		102234A			L10D1	ED-1000			10%
C22	.1	200	105239	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C23	.22	200	104310	P288N-22		CUB2P22		GEM-2022	2TM-P22	
C24	3900		104215			L10D39				10%
C25	390		105310			L10T39	ED-390			10%
C26	470		78622	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C27	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C28	.22	200	104310	P288N-22		CUB2P22			2TM-P22	
C29	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C30	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C31	1.5		103411							N3300
C32	10		105303							N150 10%
C33	4.7		105289	NPO-SI 4.7	DTZ-4R7	CTA6V47C	TCO-4.7	ZT-5547	5TCCB-V47	
C34	2200		104899			L10D22				10%
C35	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C36	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C37	560		105248			L10T56	ED-560			10%
C38	.0068	400	105229	P288N-0068	D6-682	CUB6D68	GP-6800	GEM-6268	6TM-D68	
C39	.047	200	104133	P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C40	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C41	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C42	.0018	400	102217A		DD-182		GP-1800			
C43	.0027	1600	105290							10%
C44	.0047	400	105230					GEM-16247		10%
C45	1000		77252	BPD-001	DD-102	BYA10D1M	ED-1000	DC521	5HK-D1	
C46	10000		73960	BPD-01	DD-103	BYA10S1	ED-01	DC511	5HK-S1	
C47	330		105301			L10T33	ED-330	UC-5333		10%
C48	.01	400	102220A					GEM-1611		10%
C49	.033	400	104143	P488N-033		CUB4S33		GEM-4133	6TM-S33	
C50	390		105310			L10T39	ED-390			10%
C51	.01	400	102220A					GEM-1611		10%
C52	.0082	400	105314					GEM-16282		10%
C53	10000	1000	100910		DD-103	BYA10S1		DC511	5HK-S1	
C54	.0082	600	105315					GEM-16282		10%
C55	.033	400	105318							10%
C56	.056	600	105317							10%
C57	.12	400	105319							10%
C58	.001	2000	105320							10%
C59	.0056	400	105316					GEM-16256		10%
C60	.01	400	102220A	P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C61	.47	200	104393	P288N-47		CUB4P47		GEM-2047	2TM-P47	

PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	RCA Victor PART No.	ARROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
						REPLACEMENT DATA				
C82	47	400	104393	P388N-47		CU047P47		GEM-3047	STM-P47	
C83	82		105633			CU082U	TCT-82			
C84	39		105514	NPO-SI 39	DS-39D	CTA8C39C	GP-39		STCC-S39	N750 10%
C85	1000		108234-A	BPD-D6	DO-102	BYA102M	ED-1000	DCS31	SHK-D1	10%
C86	47	400	105314							
C87	0033	600	106314	P488N-0033	DS-333	CU3D333	GP-3300	GEM-6333	STM-D33	10%
C88	390		104514	1469-00039		1R8T39			MI-339	5%
C89	01	600	73594							5%
C90	680		19648	1469-00068		1R8T68			MI-368	5%
C91	.0033	600	106234	P488N-0033	DS-333	CU3D333	GP-3300	GEM-6333	STM-D33	
C92	01	600	105131	P488N-01	DS-103	CU3B1	GP-10000	GEM-611	STM-B1	
C93	10000		73960	BPD-D1	DO-103	BYA10B1	ED-10000	DCS11	SHK-B1	
C94	1	600	104311	P668N-1	DF-104	CU5B1		GEM-601	STM-P1	
C95	100	1600	105418							N1500 10%
C96	470	2000	104383							N2200 10%
C97	470	4000	104383							N2200 10%
C98	33	6000	108417							N1500 10%
C99	15	400	104908					GEM-3015		10%
C100	1	600	106235							10%
C101	.22	1000	105233	N750-D1 22	DTN-22	CU0G22U	TCT-22		STCU-Q22	N750
C102	47	200	73787	P388N-47		CU3P47		GEM-3047	STM-P47	
C103	47	200	73787	P388N-47		CU3P47		GEM-3047	STM-P47	
C104	56	9000	108252							N1500
C105	0033	600	105234	P488N-0033	DS-333	CU3D333	GP-3300	GEM-6333	STM-D33	
C106	047	600	105231	P488N-047	DF-503	CU5S647		GEM-6147	STM-S47	
C107	047	200	104133	P388N-047	DF-503	CU3S647		GEM-4147	STM-S47	
C108	10000		73960	BPD-D1	DO-103	4BYA10B1M	ED-1K	DCS11	SHK-B1	
C109	47	200	104133	P388N-47	DF-503	CTA8C47C	TCS-47			
C110	47		105127							NPO 10%
C111	1	200	105139	P388N-1	DF-104	CU3P1		GEM-301	STM-P1	N150 10%
C112	1	400	104467	P488N-1	DF-104	CU4P1		GEM-601	STM-P1	
C113	330		105301			L10T33	ED-330			10%
C114	1	200	105139	P388N-1	DF-104	CU3P1		GEM-301	STM-P1	
C115	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	
C116	560		105243			L10T56	ED-560			10%
C117	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	
C118	1	200	105139					GEM-301		
C119	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	
C120	22	1000	105041					GEM-4022		10%
C121	15		104309	NPO-DI 15	DTZ-15	L10G15	TCC-15		STCC-Q15	N220 5%
C122	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	NPO 10%
C304A	10000		73967	BPD-2X01	DDS-103	BYA5D81	ED-1K	DCS11	SHK-2B1	
B	10000							DCS11		
C105	220		105245	N750-DI 220	DTN-220	C10T22U	TCT-220		STCU-T22	N750 10%
C106	82		105240		DTZ-82	C10G82C	TCC-82			NPO 10%
C107	.0022	200	105241							10%
C108	.0022	200	105241							10%
C109	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	
C110	47	200	104133	P388N-47		CU3P47		GEM-3047	STM-P47	
C111	.01-.05		105217							
C112	.0044	200	105241							10%
C113	10000		73960	BPD-D1	DO-103	BYA10B1	ED-1K	DCS11	SHK-B1	
C114	4700		105244			BYA10D47A	ED-0047	UC-5247	SHK-D47	
C115	1	200	105139	P388N-1	DF-104	CU3P1		GEM-301	STM-P1	
C116	120		105242	N750-DI 120	DTZ-120		TCC-120		STCC-T12	NPO 10%
C117	180		105249				TCT-180			N750 5%
C118	22		104063	NPO-DI 22	DTZ-22	C10G22C	TCC-22		STCC-Q22	NPO 10%
C119	047	600	104908					GEM-1611		5%
C120	22		104063	NPO-DI 22	DTZ-22	C10G22C	TCC-22		STCC-Q22	NPO 10%
C121	01	400	102220A					GEM-1611		10%
C122	047	400	105240							10%
C123	01	400	102220A					GEM-1611		10%
C124	047	400	105240							10%
C125	01	400	102220A					GEM-1611		10%
C126	047	400	105240							10%
C127	1000		77252	BPD-001	DD-102	BYA101DM	ED-1000	DCS21	SHK-D1	
C128	1000		77252	BPD-001	DD-102	BYA101DM	ED-1000	DCS21	SHK-D1	
C129	1000		77252	BPD-001	DD-102	BYA101DM	ED-1000	DCS21	SHK-D1	
C130	1	200	105061	P288N-1	DF-104	CU3P1		GEM-301	STM-P1	
C131	1	200	105061	P288N-1	DF-104	CU3P1		GEM-301	STM-P1	
C132	.056	200	105062							
C133	082	400	105063							
C134	1	200	105061	P288N-1	DF-104	CU3P1		GEM-301	STM-P1	
C135	.047	600	73593	P668N-047	DF-503	CU5S647		GEM-6147	STM-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
				REPLACEMENT DATA				
R1A	500Ω	½	108308	F1-1				Color ①
B	Imeg			RA-57				Volume - Top ⑥ 300K ①
C	Switch			KB-1 or KR-1*				
R2A	1,000Ω	½	105202	F1-7				Tint ②
B	250K			RA-34			■ (UE360T)	Brightness ③
R3A	5 Smeg		106300					Tone
B	5meg							Height
R4A	500Ω	½	105199					Contrast
B	Imeg							Killer Threshold
R5A	.5 Smeg	½	105198					Vert. Hold
B	50K							Vert. Lin.
R6A	2 Smeg	½	105204	AB-83 †	A47-.5meg -ST	Q1-339 †	TA3S51 †	Noise Inverter
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R7A	Imeg	½	105205	AB-69 †	A47-1meg-ST	Q1-137 †	TA3S1 †	Red Screen
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R8A	2meg	½	105206	AB-75 †	A47-2meg-ST	Q1-139 †	TA3S1 †	Red Background
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R9A	Imeg	½	105205	AB-69 †	A47-1meg-ST	Q1-137 †	TA3S1 †	Blue Screen
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R10A	2meg	½	105206	AB-75 †	A47-2meg-ST	Q1-139 †	TA3S1	Blue Background
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R11A	Imeg	½	105205	AB-69 †	A47-1meg-ST	Q1-137 †	TA3S1 †	Green Screen
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R12A	2meg	½	105206	AB-75 †	A47-2meg-ST	Q1-139 †	TA3S1 †	Green Background
B	Shaft			AK-1	FK3-1/4	Not Req.	Not Req.	
R13A	1kΩ	2(WW)	105207	WW-1B0	AB-15	W1-01A	R13L	Vert. Centering
B	Shaft			Not Req.	FK3-1/4	SK4	Not Req.	
R14	100K	1	105208					Focus
R15	100Ω	2(WW)	105209					Horiz. Centering

* Use KR with CRL "red label" and KB with "blue label" controls.
■ "ETA-LOC" Equivalent: FB15AR, OF81R, RU454L, HK54R.
† Use an extra mounting nut behind mounting surface.
① Ch. CTC7E, F use Part #105548 in this application.
② Ch. CTC7E, F use Part #105550 in this application.

CONTROLS (cont)

ITEM No.	RATING RESISTANCE	RATING WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
				REPLACEMENT DATA				
R16A	Imeg	½	105311	AB-49	A47-1meg-S	Q1-137	TA1S1	AGC
B	Shaft			AK-1	FK8-1/4	RQ	Not Req.	
R17A	250K	½	105308	AB-30	A47-250K-S	Q1-130	TA2S4L	Horiz. Drive
B	Shaft			AK-1	FK8-1/4	RQ	Not Req.	
R18A	500K	½	105310	AB-39	A47-500K-S	Q1-133	TA5S1	High Voltage Adj.
B	Shaft			AK-1	FK8-1/4	RQ	Not Req.	
R19	750Ω	½	108297					Sound Reject.
R20	100Ω	2(WW)	108060					Red Vert. Amp.
R21	100Ω	2(WW)	108060					Green Vert. Amp.
R22	100Ω	2(WW)	105060					Blue Vert. Amp.
R23	600	2(WW)	105059					Red Vert. Tilt
R24	600	2(WW)	105059					Blue Vert. Tilt
R25	600	2(WW)	105059					Left Horiz. R-G ③
R26	600	2(WW)	105059					Left Horiz. R-G ④
R27	100Ω	2(WW)	108060					Left Horiz. B-Z
R28	100Ω	2(WW)	108060					

* Use KR with CRL "red label" and KB with "blue label" controls.
■ "ETA-LOC" Equivalent: FB15AR, OF81R, RU454L, HK54R.
† Use an extra mounting nut behind mounting surface.
① Ch. CTC7E, F use Part #105548 in this application.
② Ch. CTC7E, F use Part #105550 in this application.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R29	330K 5%		502433	
R30	2.2meg 5%		502522	
R31	51000Ω 5%		5413	
R32	33000Ω 5%		502233	
R33	1000Ω		502310	
R34	680Ω		502168	
R35	47Ω 5%		502047	
R36	1000Ω		502310	
R37	680Ω		502168	
R38	3900Ω	10	105120	
R39	680Ω 5%		502068	
R40	470Ω		502147	
R41	5600Ω	5	105223	
R42	100Ω		502310	
R43	62000Ω 5%		502262	
R44	12K 5%		502312	
R45	6600Ω 5%	7	105245	
R46	220Ω		502122	
R47	150K		502415	
R48	22K	2	522322	
R49	56Ω		502056	
R50	18000Ω 5%		502318	
R51	100K		502410	Note 1
R52	18000 5%		502318	
R53	62K		502362	
R54	270K	2	502427	
R55	22K	2	522322	
R56	68Ω		502068	
R57	10000Ω		502310	
R58	220Ω		502122	
R59	82K		502382	
R60	330K 5%		502433	
R61	330K 5%		502433	
R62	100K 5%		502410	
R63	10K		502310	
R64	3300Ω	1	512333	
R65	82Ω		502082	
R66	560K 5%		502456	
R67	470K 5%		502427	
R68	470K		502447	
R69	33000		502233	
R70	5600Ω		502168	
R71	2.4meg 5%		502524	
R72	2.4meg 5%		502524	
R73	47K		502347	
R74	2.4meg		502422	
R75	1meg		502410	
R76	22K		502322	
R77	39K		502339	
R78	1000		502082	
R79	1meg		502510	
R80	1.5meg		502512	
R81	1meg		502510	
R82	33K		502333	
R83	560K		502456	
R84	100Ω	1	512310	
R85	100K		502410	
R86	6.5meg		502569	
R87	10K		502310	
R88	1meg 5%		502510	
R89	33K		502333	
R90	1.5meg		502512	
R91	470K		502447	
R92	2.2meg 5%		502522	
R93	47K 5%		512347	
R94	82K 5%		502215	
R95	47K		502347	
R96	22K 5%		502322	
R97	180K		502412	
R98	56K		502356	
R99	2700Ω	7	105223	
R100	330K		502433	
R101	2700 5%		502137	
R102	4.5Ω Cold			Note 2
R103	2700 5%		502137	
R104	330K		502433	
R105	82000		502282	
R106	82000		502282	
R107	82K		502382	
R108	680K 5%		502468	
R109	82000		502282	
R110	270K 5%	1	513427	
R111	680K		502468	
R112	68K		502368	
R113	39K	1	513339	
R114	100K	1	512410	
R115	100Ω		502110	
R116	560K		502456	
R117	47Ω		502047	
R118	11K	7	105221	
R119	10K		502310	
R120	1.5meg		502512	Note 3
R121	4700Ω		502447	
R122	47Ω		502047	
R123	68K	1	512368	
R124	22meg	2	522622	
R125	22meg	2	522622	
R126	22meg	2	522622	
R127	1meg	2	522510	
R128	56K	2	522356	
R129	100meg	1	514710	
R130	1.5meg	1	512515	
R131	1.5meg	1	512515	
R132	10K	1	512310	
R133	22meg	2	522622	
R134	10K 5%	1	512310	
R135	47K	2	522347	
R136	10K 5%		502310	
R137	330K		502433	
R138	22meg 5%		502622	
R139	12K	3	105225	
R140	100Ω		502110	
R141	100K		502410	
R142	22K	2	522322	
R143	3300		502133	
R144	4700Ω		502447	
R145	1200Ω		502312	
R146	10K		502310	
R147	470K 5%	1	512447	
R148	33K 5%	1	105227	
R149	15000 5%		502215	
R150	33K		502333	
R151	10000		502310	
R152	15K	2	522315	
R153	27K	2	522327	
R154	5600 5%		502168	
R155	47K		502347	
R156	2700 5%		502137	
R157	47K	1	512347	
R158	1meg		502810	
R159	4.7meg 5%		502547	
R160	10000		502237	
R161	2.7meg 5%		502537	
R162	2700 5%		502137	
R163	1.5meg		502515	
R164	2.2meg 2%		105226	Note 4
R165	2.2meg 2%		105226	Note 4
R166	2700 5%		502137	
R167	1500		502115	
R168	56000 5%	1	512356	
R169	15000		502215	
R170	56000 5%	1	512356	
R171	1meg 5%		502810	
R172	4700Ω	1	512247	
R173	15K	3	105224	
R174	180K		502439	
R175	1.5meg		502515	
R176	5600 5%	2	522156	
R177	1meg 5%		502810	
R178	15K	3	105224	
R179	390K		502439	
R180	1.5meg		502515	
R181	1meg 5%		502810	
R182	15K	3	105224	
R183	390K		502439	
R184	1.5meg		502515	
R185	9100 5%	3	105254	
R186	27000 5%	7	105223	
R187	9100 5%	3	105254	
R188	4700Ω		502227	
R189	100K	2	522410	
R190	100K	2	522410	
R191	100K	2	522410	
R192	330Ω		502133	
R193	82Ω	1	512082	
R194	100Ω	1	512110	
R195	100Ω	1	512110	
R196	100Ω	1	512110	
R197	18000	10	104170	
R198	18000	10	104170	
R199	820K		502382	Note 5
R200	820K		502382	Note 5

Note 1. Not used in some versions.
Note 2. Temperature compensating.
Note 3. Some versions may use 1meg in this application (Part #502510).
Note 4. R164 and R165 are a matched pair 2% tolerance.
Note 5. Some versions may use 56K in this application (Part #502356).

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RCA Victor PART No.	Halidorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.
				REPLACEMENT DATA						
T1	117VAC @3 5A	710VCT @ .450A	5VAC @ 3A	108191						
	SEC. 3	SEC. 4	SEC. 5							
	6.3VAC @1.9A	6.3VAC @13.1A								

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No.	Halidorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
		REPLACEMENT DATA							
T2	Vert. Output	108193							
T3	Vert. Convergence Choke	105194							
T4A	Yoke-Horiz. (21.5MH)	105040 ①							
B	Vert. (35MH)								
T5	Horiz. Output	108183 ②							
T6	Linearity Coil (.28-1MH) CT	105196							
T7	Right Horiz. R-G 1 Coil (3.5-7.5MH)	105065							
T8	Right Horiz. Bl Coil	105065							
T9	Right Horiz. B-Z1 Coil (2.5-4.5MH)	105066							
T10	Conv. Yoke Assy. A Green Coil	105039							
	■ Blue Coil	105039							
	C Red Coil	105039							

① Includes R101, R102, R103, R121, C75, C76, C77 and C78.
② Includes focus rectifier tube (V15).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	RCA Victor PART No.	Halidorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordorson PART No.	Triad PART No.	NOTES
			REPLACEMENT DATA							
T11	7600Ω	3-4Ω	100037	Z1003	A-3020		A-3849	26848	S-92	

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	RCA Victor PART No.	QUAM PART No.	NOTES
				REPLACEMENT DATA		
SP1	8" 14" x 3" 8½" 6" x 9"	PM PM PM	3-4Ω	74064 ① 105004 ② 102119 ③ 101163 ④	8A81	① Used in Models 21CD875S, U, 8727, U, 8885, U, 8886, U, 8888, U, 8906, U, 8907, U ② Used in Models 21CD877S, U, 8776, U, 8777, U ③ Two used in Models 21CD886S, U, 8886, U, 8867, U, 8888, U, 8886, 8888, U, 8908, U, 8907, U, 8926, U, 8927, U, 8949, U ④ Used in Models 21CD886S, U, 8886, U, 8867, U, 8926, U, 8927, U, 8944, U

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
		REPLACEMENT DATA					
L1	1st. Video IF	105291					
L2	47.25MC Trap	105308					
L3	41.25MC Trap	105307					Includes Caps.
L4	Fil. Choke						
L5	2nd. Video IF	105292					
L6	Fil. Choke						
L7	3rd. Video IF	105293					
L8A	4th. Video IF	105294					Includes Cap.
B	41.25MC Trap						
L9	RF Choke	105308					L 8 Microhenries
L10	4.5MC Trap	105295					
L11	Series Peaking Coil	102201		19-4060 *	TV-193 *	6110 *	6z Microhenries, wound on imeg resistor
L12	RF Choke	78465					L 8 Microhenries
L13	Series Peaking Coil			19-3180	TV-184	6180	VP-5 180 Microhenries-Note 1
L14	Series Peaking Coil	102196		19-3180 ▲	TV-184	6180 ▲	VP-5 ▲ 180 Microhenries, wound on 1800Ω resistor
L15	Shunt Peaking Coil	104904		19-3180	TV-184	6180	VP-5 180 Microhenries
L16	Series Peaking Coil	105311		19-3350 ■	TV-185 ■	6181 ■	VP-6 ■ 350 Microhenries, wound on 8200Ω resistor
L17	Series Peaking Coil	105455		19-3350 ▲	TV-185 ▲	6181 ▲	VP-6 ▲ 350 Microhenries, wound on 15K resistor
L18	Shunt Peaking Coil			19-3125	TV-196	6183	VP-4 120 Microhenries-Note 2
L19	IF Choke	100441		19-3864	BC-566	4622	12 Microhenries
L20	RF Choke	100441		19-3864	BC-566	4622	12 Microhenries
L21	1st. Sound IF	105296					Includes Cap.
L22	2nd. Sound IF	105297					Includes Cap.
L23	Quadrature Coil	105298					Includes Cap.
L24	1st. Chroma Grid Coil	105251					
L25	1st. Chroma Bandpass Trans.	105213					
L26	2nd. Chroma Bandpass Trans.	105212					
L27	Series Peaking Coil	102248		19-3560	TV-205	6146	620 Microhenries
L28	Burst Amp. Trans.	105214					
L29	Chroma Ref. Osc. Control Plate Coil	105215					
L30	Chroma Ref. Osc. Plate Trans.	105215					Includes Caps. & Resistors
L31	RF Choke	105250		19-3864	BC-566	4622	12 Microhenries
L32	Series Peaking Coil	102248		19-3560	TV-205	6146	620 Microhenries
L33	RF Choke	100441		19-3864	BC-566	4622	12 Microhenries
L34	RF Choke	100441		19-3864	BC-566	4622	12 Microhenries

* Parallel with a 1meg resistor.
▲ Parallel with an 180Ω resistor.
■ Parallel with an 820Ω resistor.
▲ Parallel with a 15K resistor.
Note 1. Some versions may use 120 microhenries in this application (Part #104229).
Note 2. Some versions may use 250 microhenries in this application (Part #101387).

RCA VICTOR CHASSIS CTC7A, B, C, D, E, F

FOLDER 3

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	Thordarson PART No.	
L35	76Ω *		105197		TV-165			HS-7	Horiz. Freq. * Tapped @ 52Ω
L36	46Ω		102195						Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA						
	CURRENT (Measured)	DC RES.	INDUCTANCE (0 CURRENT 1000 ∿)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L37	.450A	17Ω	.7 Hy.	105195						

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	RCA Victor PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1		105064 ①			59-0639 ①		① Selenium Type.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	#21 Wire	3" Long	102792					
M3	3AG	2A 250V	102182		318002. (3AG-2A-250V-P/T)		GJV 2	
M4	3AG	3/4A 250V	105252		318.750 (3AG-3/4A-250V-P/T)		GJV 3/4	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		RCA Victor PART No.	CBS PART No.	SYLVANIA PART No.	
M5	1N64	76675A	1N64	1N60	Video Det. (Pigtail)
M6	K60	76675A	1N64	1N60	Sound Det. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M7	Lamp	103211	#47 Not used in Ch. CTC7E, F
M8	Tuner	104948	VHF (KRK48A/B) Ch. CTC7A, C, E
	Tuner	104947	UHF-VHF (KRK49A/B) Ch. CTC7B, D, F
	Tuner	104594	UHF (KRK56D) Ch. CTC7B, D, F
	Tuner	105433	UHF (KRK56E) Ch. CTC7B, D, F
M9	Delay Line	105253	
M10	Crystal	105330	3.579545MC
M11	Magnet	105027	Edge Purity (8 Required)
M12	Magnet	105038	Lateral Assembly
M13	Magnet	105024	Convergence (3 Required) Part of T10
	Switch	105177	SPDT, "Z" Purity
	Printed Board	105260	Video IF & Sync - Less Tubes & Shields
	Printed Board	105261	Video & AGC - Less Tubes & Shields
	Printed Board	105259	Sound - Less Tubes & Shields
	Printed Board	105262	Sync & Vert. - Less Tubes
	Printed Board	105263	Horiz. Osc. - Less Tubes
	Printed Board	105067	Convergence

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	105014	Models 21CD8725, U, 21CD8727, U
Safety Glass	105008	All models except 21CD8725, U, 21CD8727, U
Mask	105007	
Knob	100407	Focus
Knob	105179	"Z" Purity
Knob	104993	Color, Tint - Dark Wine
Knob	104994	Color, Tint - Taupe
Knob	102581	Tone, Contrast, Vert. Hold, Horiz. Hold
Knob	104637	UHF Dial Escutcheon - Dark Wine
Knob	104638	UHF Dial Escutcheon - Gray
Knob	101146B	UHF Dial Escutcheon - Clear
Knob	102653	UHF Tuning - Models 21CD8725U, 21CD8775U, 21CD8865U, 21CD8885U
Knob	102749	UHF Tuning - Model 21CD8888U
Knob	101144B	UHF Tuning - Models 21CD8926U, 21CD8927U, 21CD8949U
Knob	102578	UHF Tuning - Taupe
Knob	104978	VHF Channel Selector - Models 21CD8725, 21CD8775
Knob	104979	VHF Channel Selector - Models 21CD8727, 21CD8776, 21CD8777
Knob	104981	VHF Channel Selector - Models 21CD8725U, 21CD8775U
Knob	104982	VHF Channel Selector - Models 21CD8727U, 21CD8776U, 21CD8777U
Knob	104984	VHF or UHF Channel Selector - Models 21CD8865, U, 21CD8885, U
Knob	104985	VHF or UHF Channel Selector - Taupe
Knob	104986	VHF or UHF Channel Selector - Mocha
Knob	104987	Fine Tuning - Dark Wine
Knob	104988	Fine Tuning - Taupe
Knob	104989	Fine Tuning - Mocha
Knob	104990	Volume or Brightness - Models 21CD8725, U, 21CD8775, U, 21CD8865, U, 21CD8885, U
Knob	104991	Volume or Brightness - Taupe
Knob	104992	Volume or Brightness - Mocha
Dial	105184	VHF Channel Indicator Dial Assy. - Less Shaft - Ch. CTC7C
Dial	105187	VHF-UHF Channel Indicator Dial Assy. - Less Shaft - Ch. CTC7D
Dial	105545	VHF-UHF Channel Indicator Dial Assy. - Less Shaft - Ch. CTC7E
Dial	105544	VHF-UHF Channel Indicator Dial Assy. - Less Shaft - Ch. CTC7F

PARTS LIST AND DESCRIPTIONS (Continued)

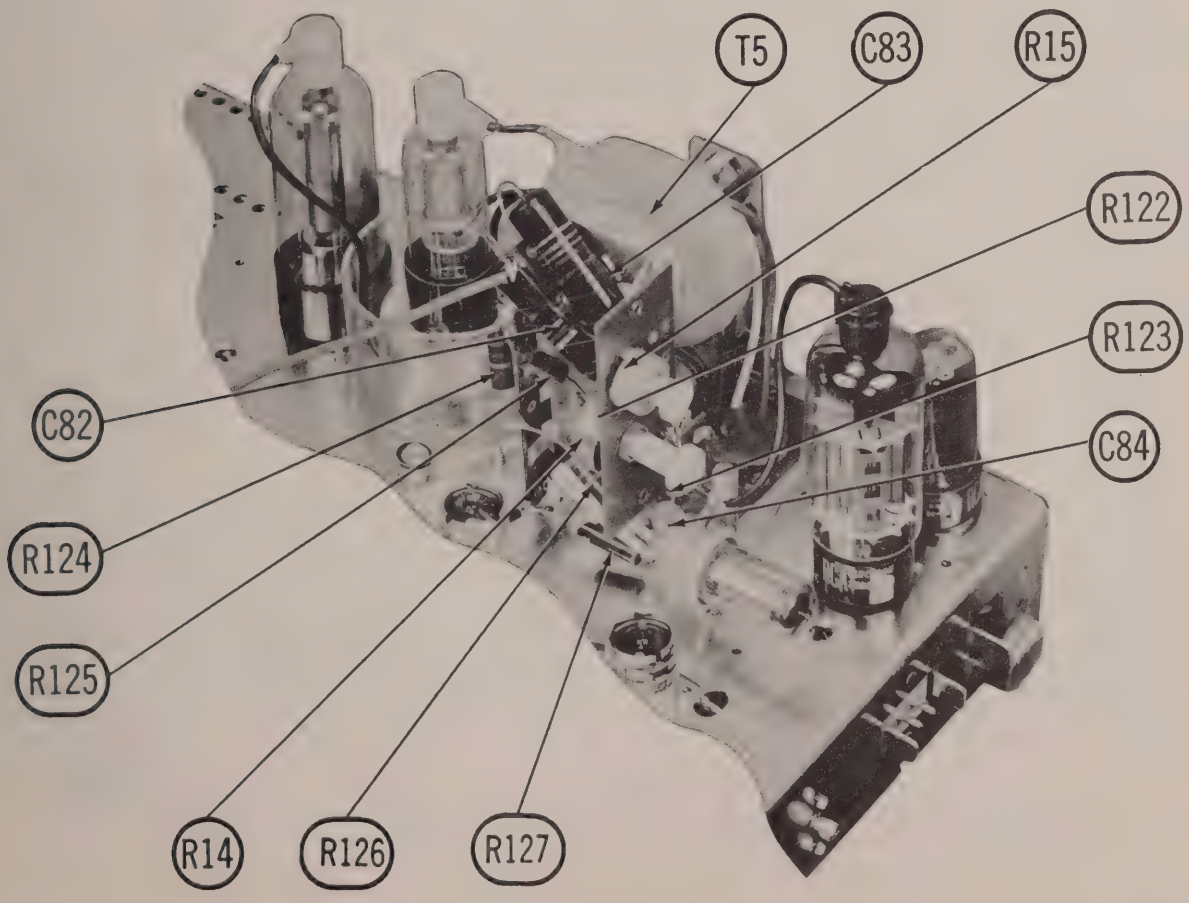
CABINETS & CABINET PARTS(cont)

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Leg	X3907	Models 21CD8775, U
Leg	X3908	Models 21CD8776, U
Leg	X3909	Models 21CD8777, U
Leg	X3910	Models 21CD8865, U
Leg	X3911	Models 21CD8866, U
Leg	X3912	Models 21CD8867, U
Cabinet	Z4235	Models 21CD8725, U
Cabinet	Z4236	Models 21CD8727, U
Cabinet	M4237	Models 21CD8775, U
Cabinet	M4238	Models 21CD8776, U
Cabinet	M4239	Models 21CD8777, U
Cabinet	M4245	Models 21CD8865, U
Cabinet	M4246	Models 21CD8866, U
Cabinet	M4247	Models 21CD8867, U
Cabinet	X4248	Models 21CD8885, U
Cabinet	X4249	Models 21CD8886, U
Cabinet	X4250	Models 21CD8888, U
Cabinet	X4252	Models 21CD8906, U
Cabinet	X4251	Models 21CD8907, U
Cabinet	X4274	Models 21CD8926, U

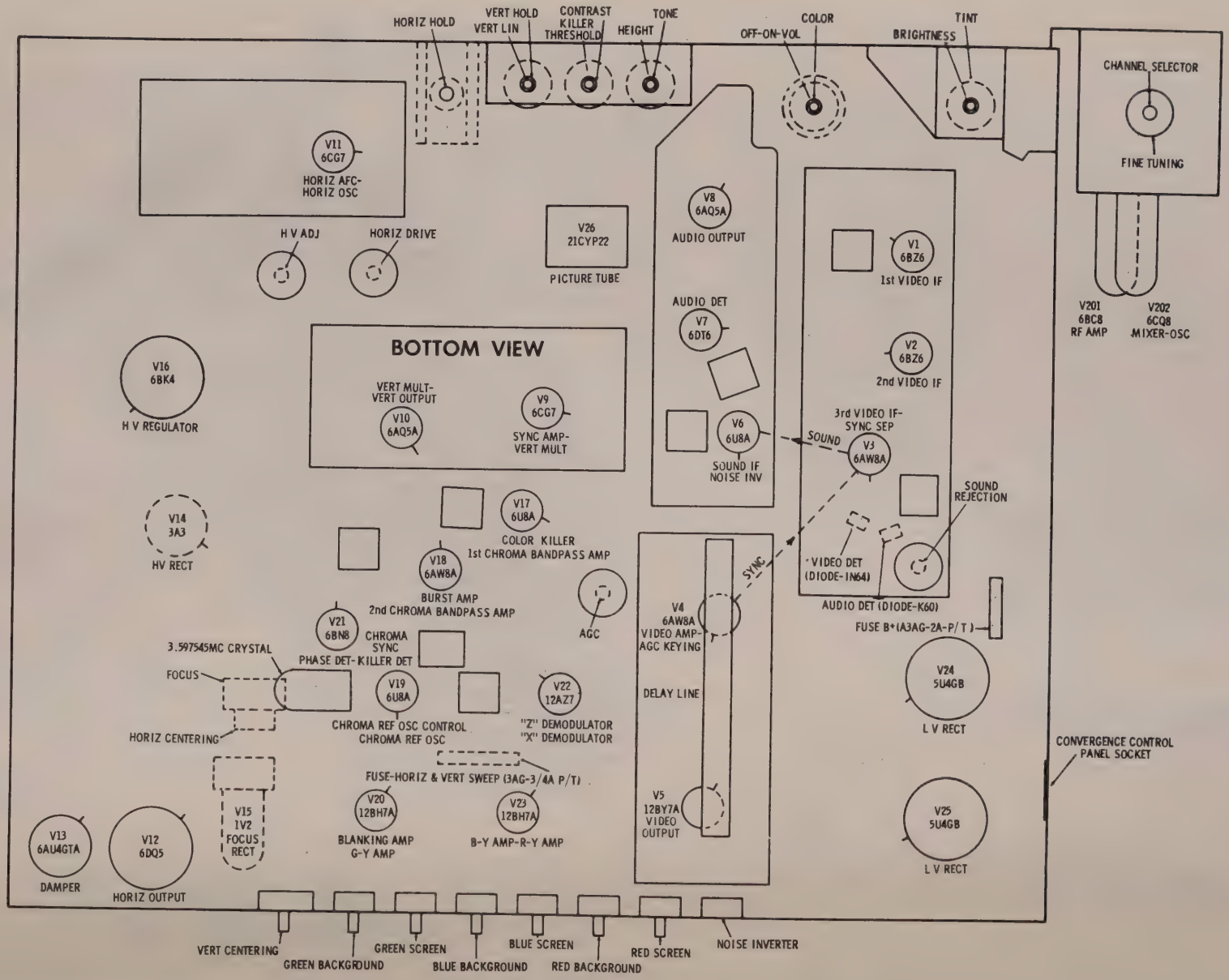
WIRING DATA

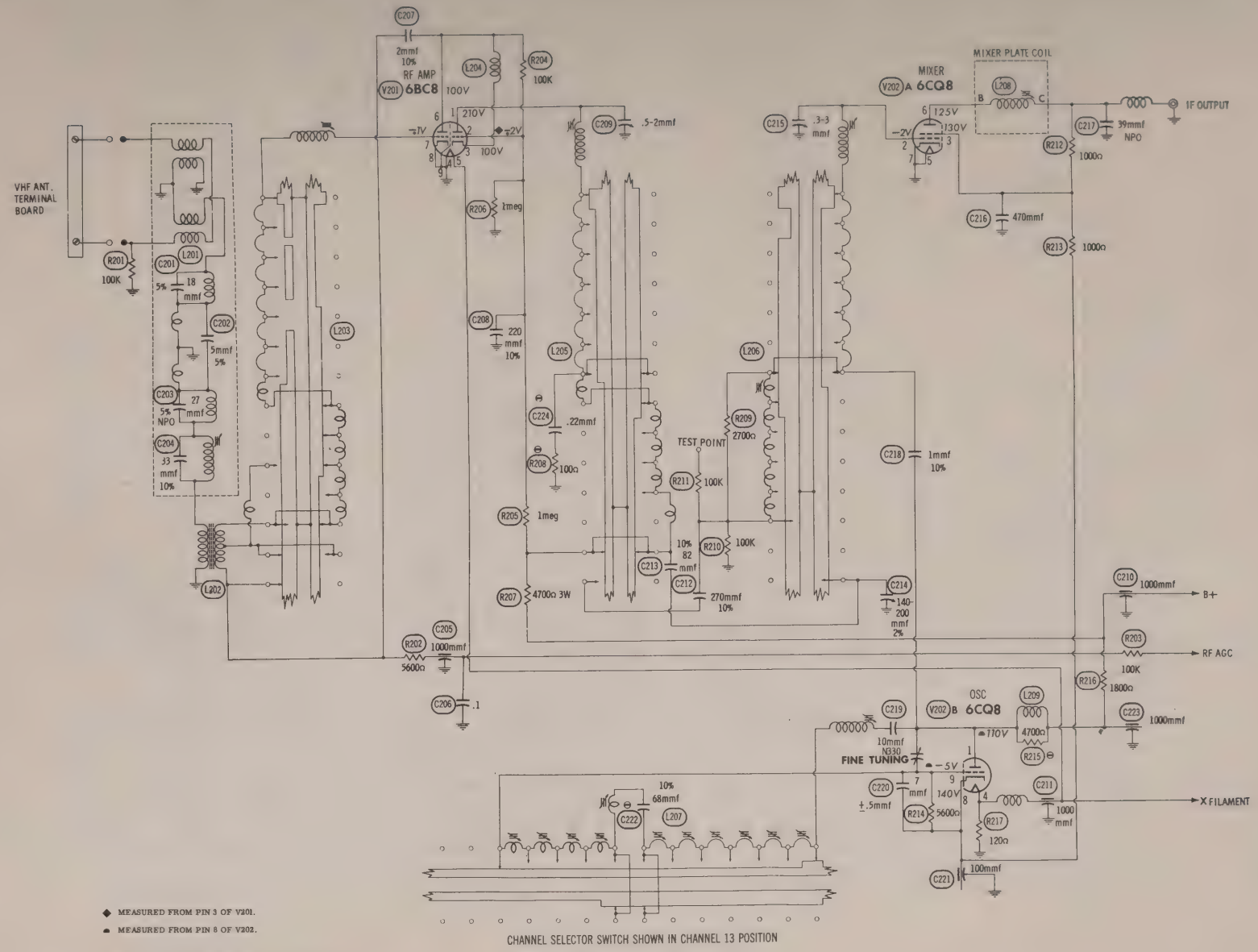
High Voltage Lead	Use BELDEN No.	8869
Shielded Hook-up Wire	Use BELDEN No.	8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No.	8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No.	8874
300Ω Tuner Input Lead	Use BELDEN No.	8225
300Ω Antenna Lead-in	Use BELDEN No.	8230 or 8275
Antenna Rotor Cable	Use BELDEN No.	8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



HIGH VOLTAGE COMPARTMENT

TUBE PLACEMENT CHART





◆ MEASURED FROM PIN 3 OF V201.

▲ MEASURED FROM PIN 8 OF V202.

CHANNEL SELECTOR SWITCH SHOWN IN CHANNEL 13 POSITION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

VHF TUNER #104948 (KRK48A/B) SCHEMATIC

RCA VICTOR CHASSIS
CTC7A, B, C, D, E, F

TUNER PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V201	RF Amp.	6BC8	

ITEM No.	USE	TYPE	NOTES
V202	Mixer-Osc.	6CQ8	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C201	18		102646		TCZ-18	C10Q18C	TCO-18			5%
C202	5		102571	NPO-DI 5.0	TCZ-4R7	C10V5C	TCO-5		5TCCB-V47	5%
C203	27		100352		TCZ-27	C10Q27C	TCO-27			NPO 5%
C204	33		102573	NPO-SI 33	TCZ-33	C10Q33C	TCO-33	ZT-5433	5TCC-Q33	10%
C205	1000		103517	EF-001	MFT-1000				503C-D1	
C206	.1	200	105239	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C207	2		78047	NPO-SI 2.2	TCZ-2R2	C10V2C	TCO-2.2		5TCCB-V22	10%
C208	220		100672		D6-221	L10T22	ED-220		MS-322	10%
C209	.5-2		103554		829-3		3115-D	CT565A		
C210	1000		103517	EF-001	MFT-1000				503C-D1	
C211	1000		103517	EF-001	MFT-1000				503C-D1	
C212	270		77838		D6-271	L10T27	ED-270		MS-327	10%
C213	82		103560	1469-000082	D6-820	22R5Q82	ED-82		MS-482	10%
C214	140-200		103519							2%
C215	.3-3		103552							
C216	470		78622	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C217	39		104931	NPO-DI 39	TCZ-39	C10Q39C	TCO-39			NPO
C218	1		77890		TCZ-1		TCO-1		5TCCB-V1	10%
C219	10		103556							N330
C220	7		103523		TCZ-6R8	C10V7C	TCO-6.8	ZT-5568		±.5mmf
C221	100		103518	EF-0001	MFT-100				503C-T1	
C222	68			NPO-DI 68	D6-680	L10Q68	ED-68		5TCC-Q68	10% ①
C223	1000		103517	EF-001	MFT-1000				503C-D1	
C224	.22									②

① Some versions may use 47mmf N1500 in this application (Part #103559).
② Some versions may use .68mmf 10% in this application (Part #71504).

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R201	100K		502410	
R202	5600Ω		502256	
R203	100K		502410	
R204	100K		502410	
R205	1meg		502510	
R206	1meg		502510	
R207	4700Ω	3		
R208	100Ω		502110	Note 1

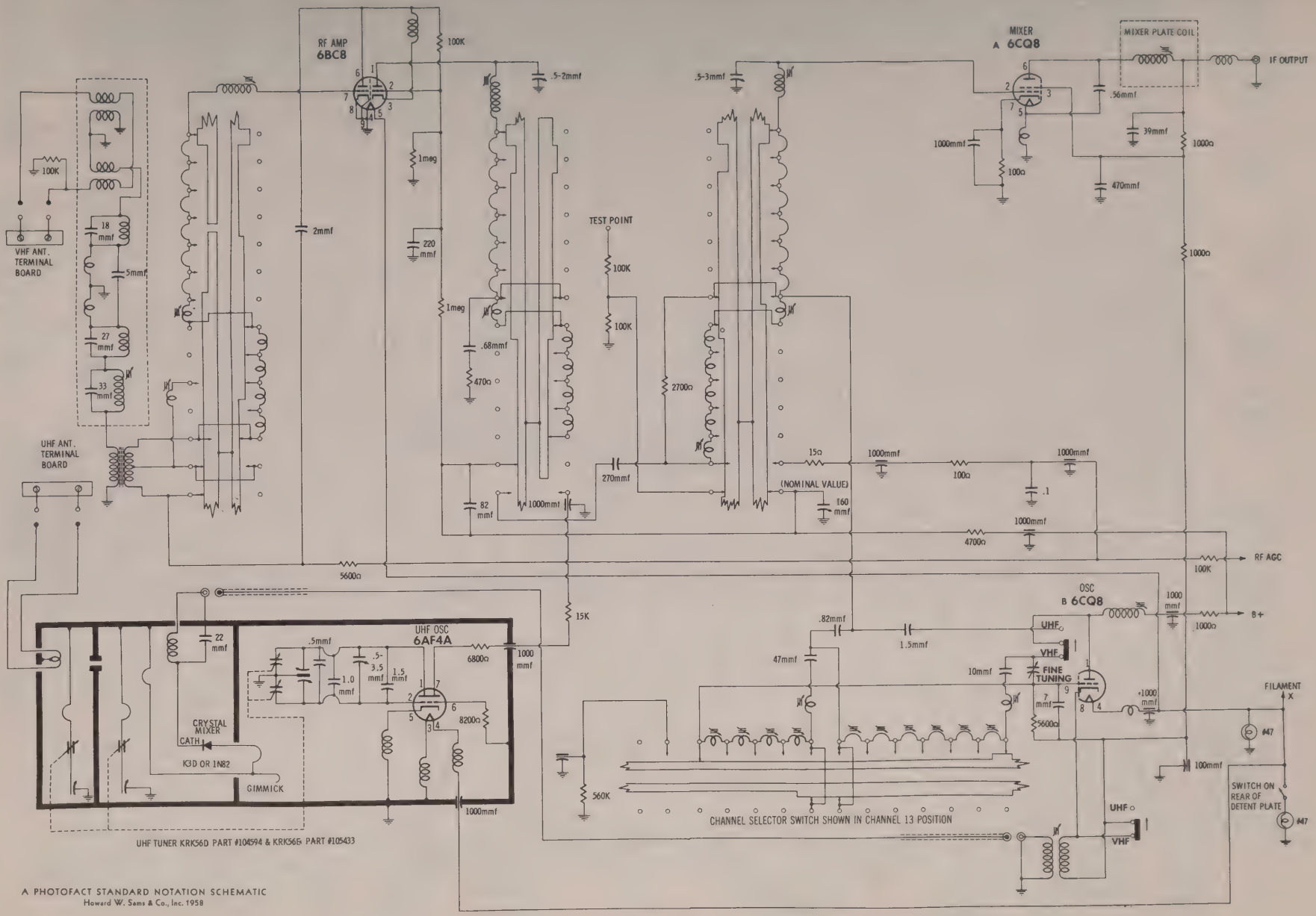
ITEM No.	RATING		RCA Victor PART No.	NOTES
	OHMS	WATT		
R209	2700Ω		502227	
R210	100K		502410	
R211	100K		502410	
R212	1000Ω		502210	
R213	1000Ω		502210	
R214	5600Ω		502256	
R215	4700Ω		502247	Note 2
R216	1800Ω		502218	
R217	120Ω		502112	

Note 1. Some versions may use 470Ω in this application (Part #502147).
Note 2. Some versions may use 6800Ω in this application (Part #502268).

COILS (RF-IF)

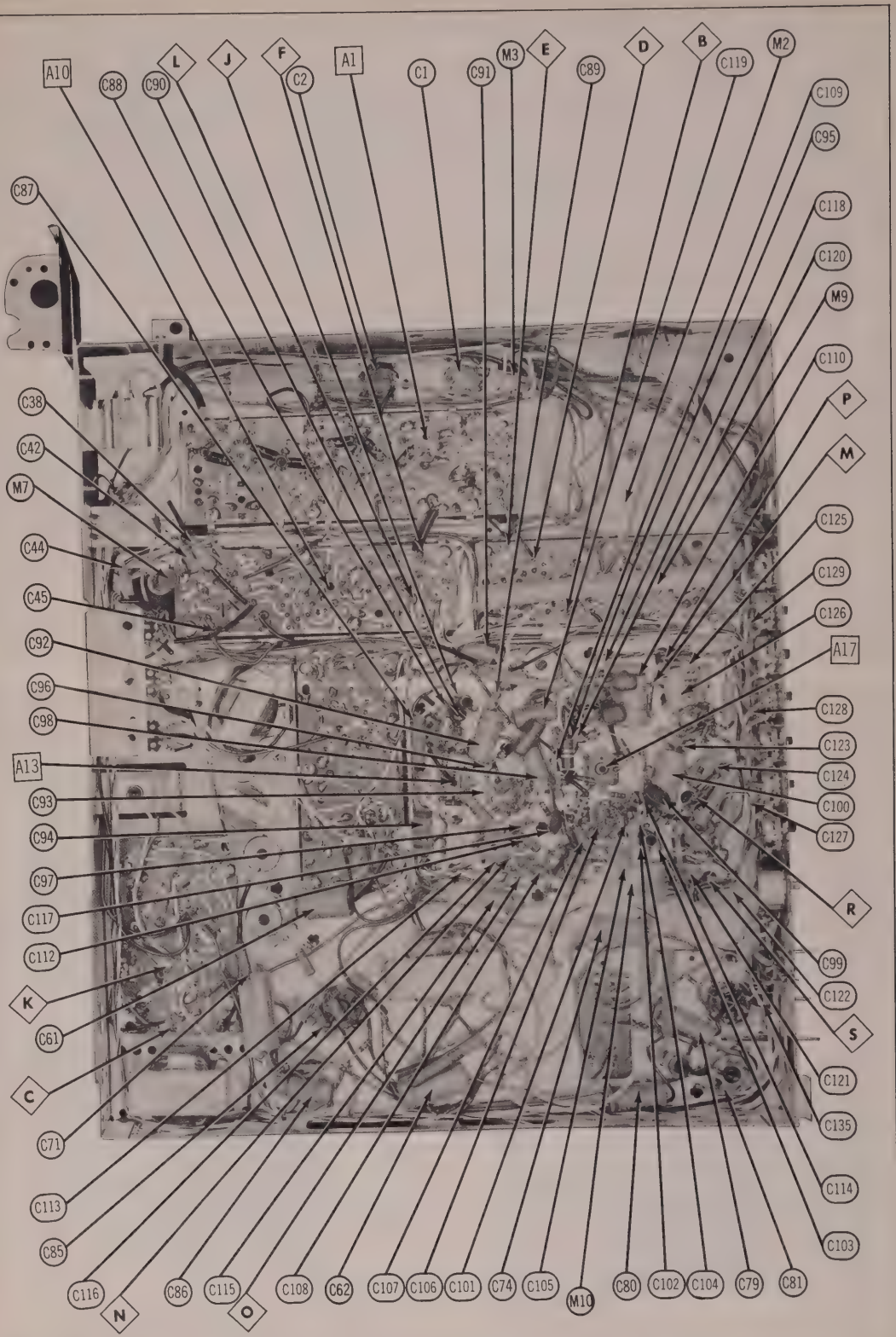
ITEM No.	USE	RCA Victor PART No.	NOTES
L201	Ant. Matching Trans. Assy.	104936	Includes C201, C202, C203, C204 & Trap Coils
L202	Ant. Trans.	104937	
L203	Ant. Coils	104941	Channel 2-13, Includes C207, R202, stator & wafer assy.
L204	Neut. Coil	76562	
L205	RF Coils	104939	Channel 2-13, Includes C224, R208, stator & wafer assy.

ITEM No.	USE	RCA Victor PART No.	NOTES
L206	Mixer Grid Coils	104940	Channel 2-13, Includes C212, R209, R210, R212, stator & wafer assy.
L207	Osc. Coils	104938	Channel 2-13, Includes C219, C222, stator & wafer assy.
L208	Mixer Plate Coil	104943	
L209	RF Choke	103524	1.5 Microhenries



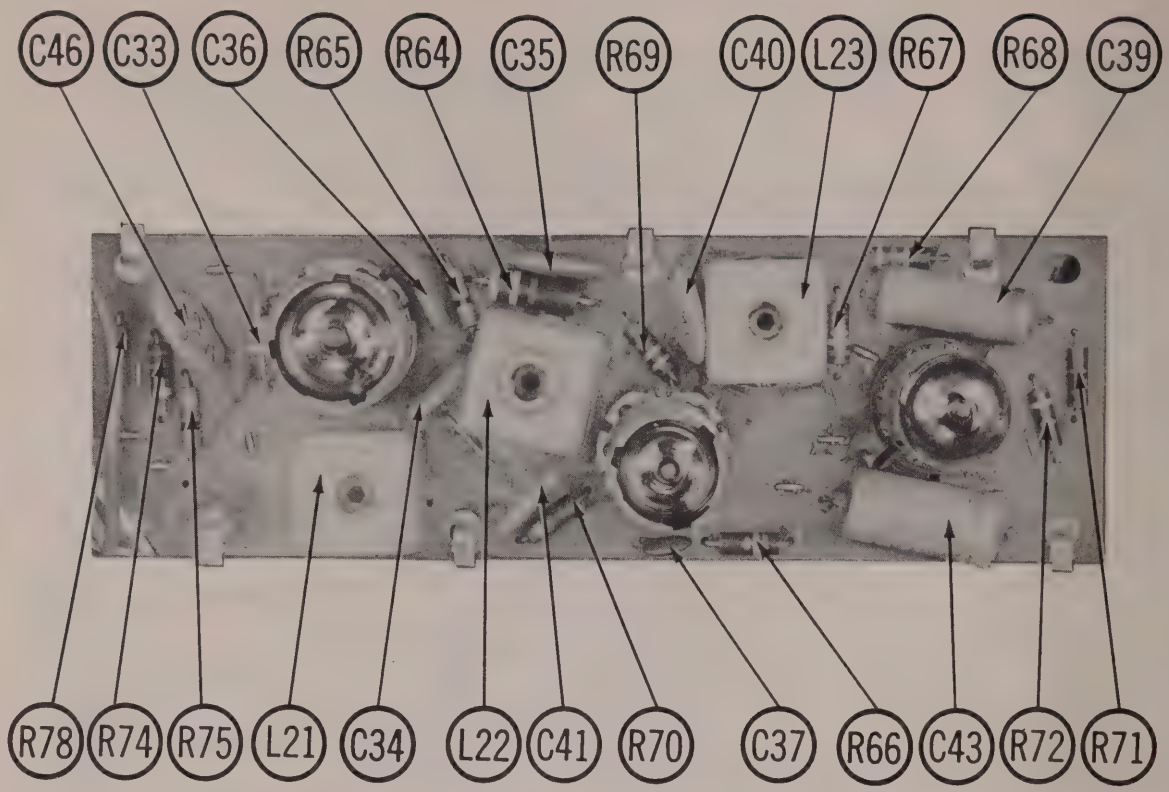
A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

UHF-VHF TUNER #104947(KRK49A/B) SCHEMATIC

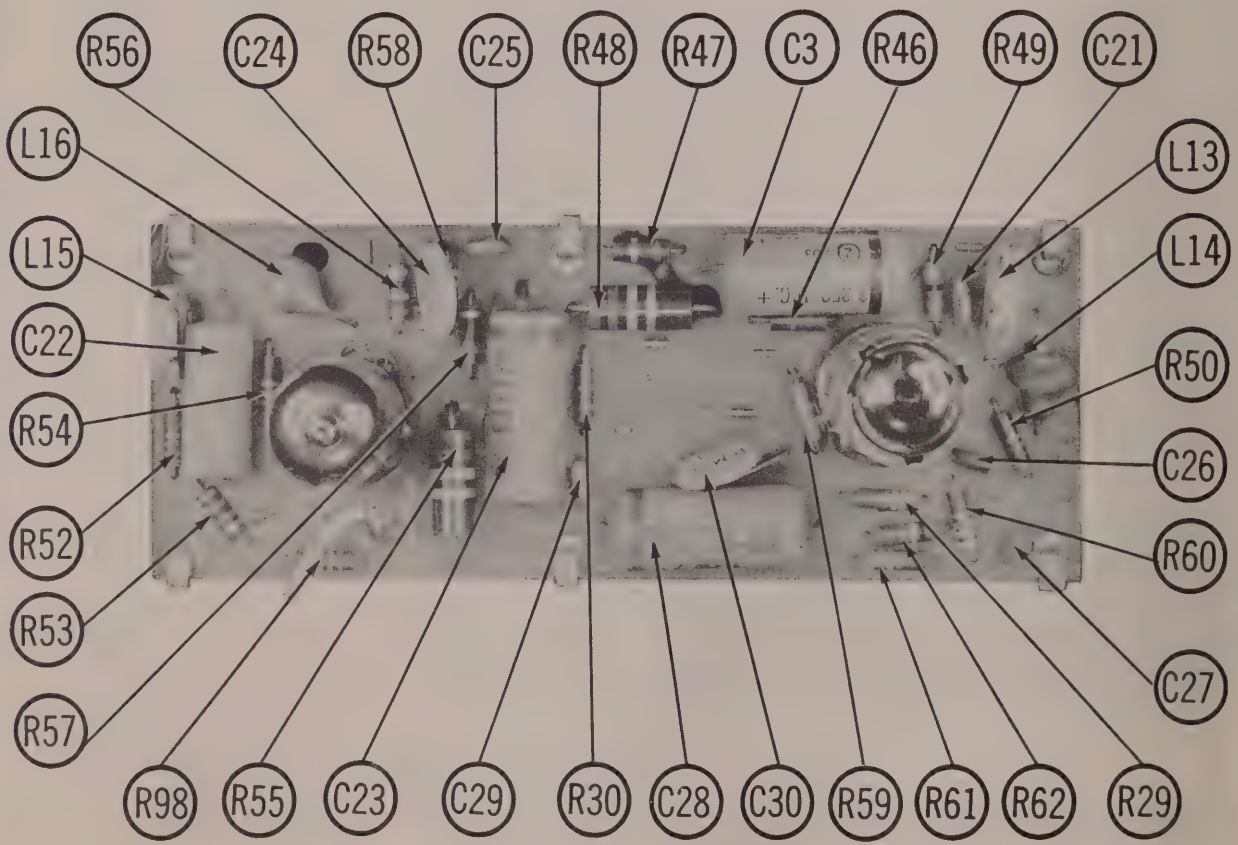


CHASSIS BOTTOM VIEW-CAPACITOR AND ALIGNMENT IDENTIFICATION

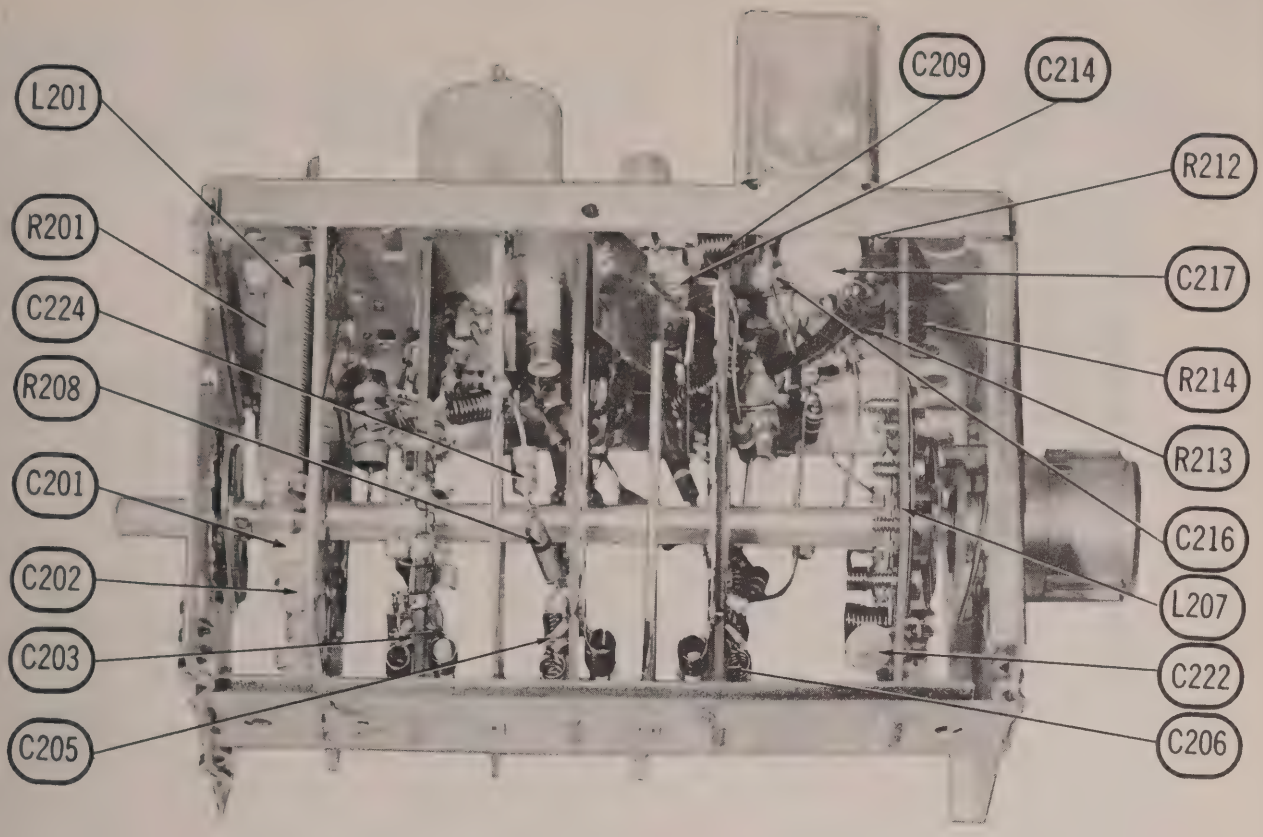
RCA VICTOR CHASSIS
CTC7A, B, C, D, E, F



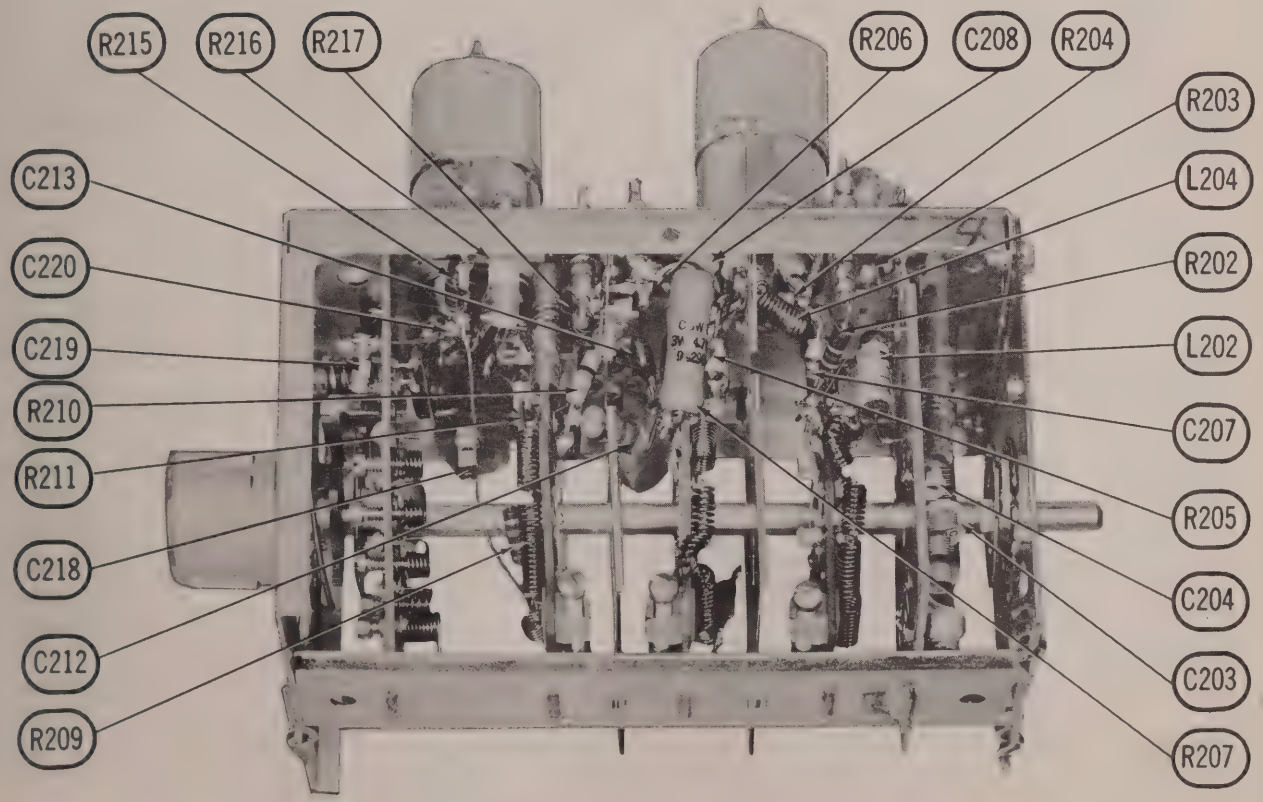
SOUND—PRINTED BOARD



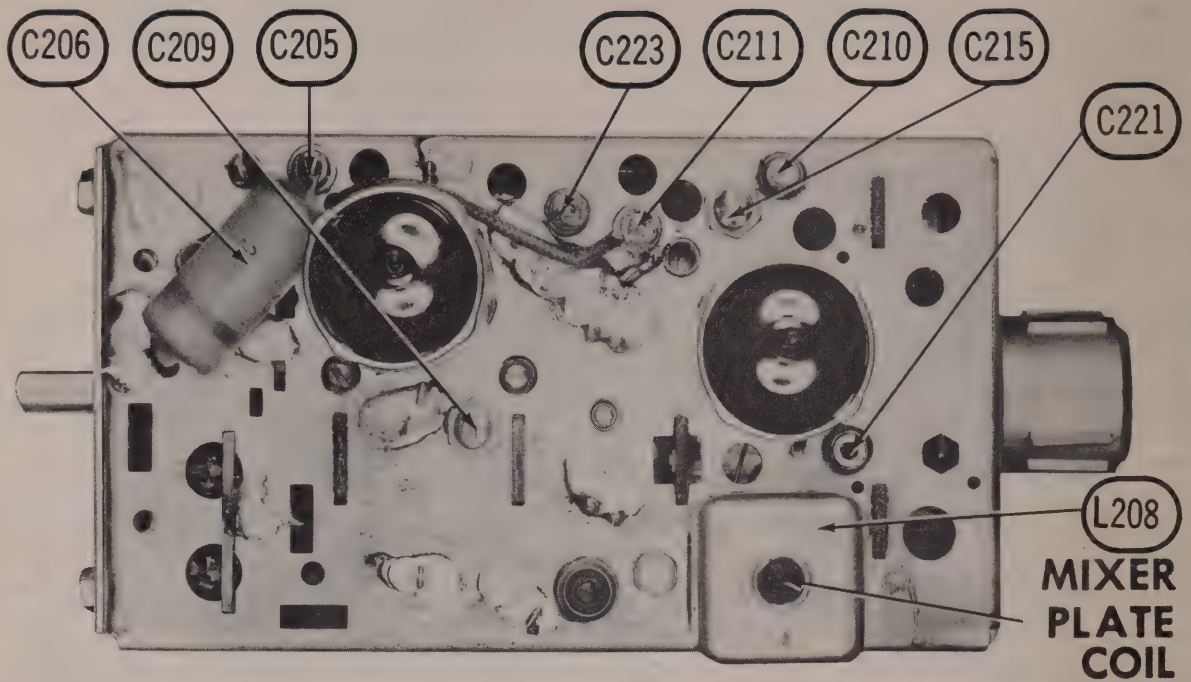
VIDEO & AGC PRINTED BOARD



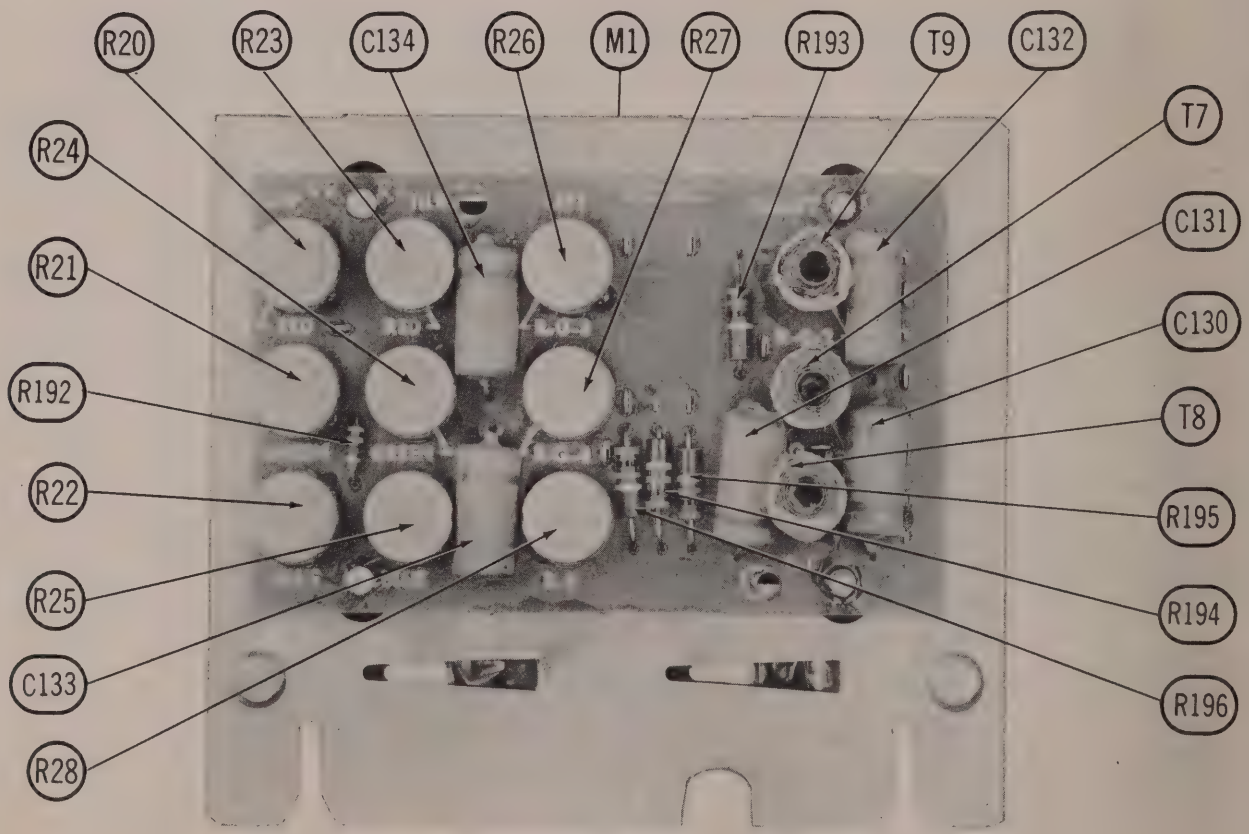
RF TUNER-LEFT SIDE



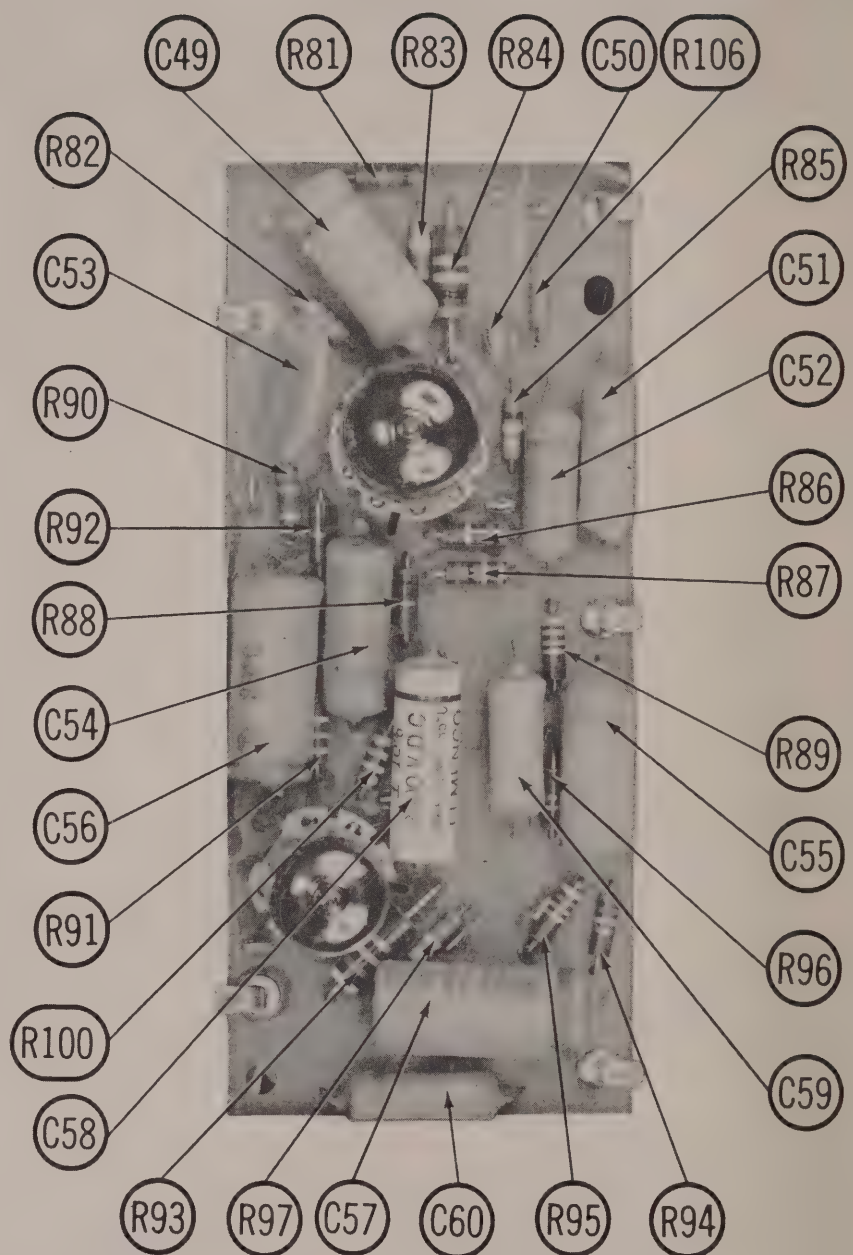
RF TUNER-RIGHT SIDE



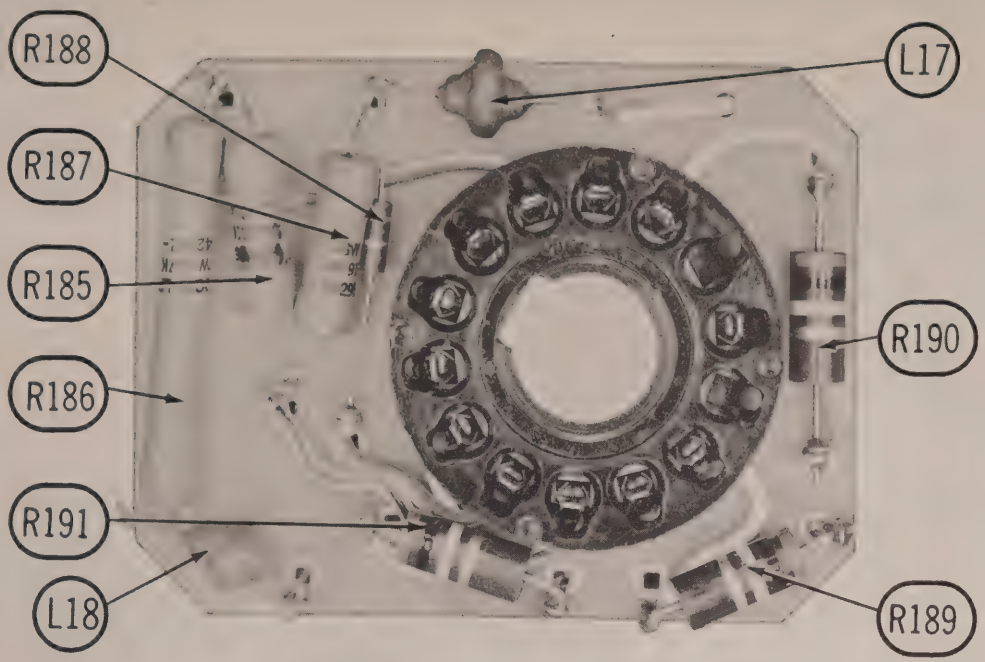
RF TUNER-TOP VIEW



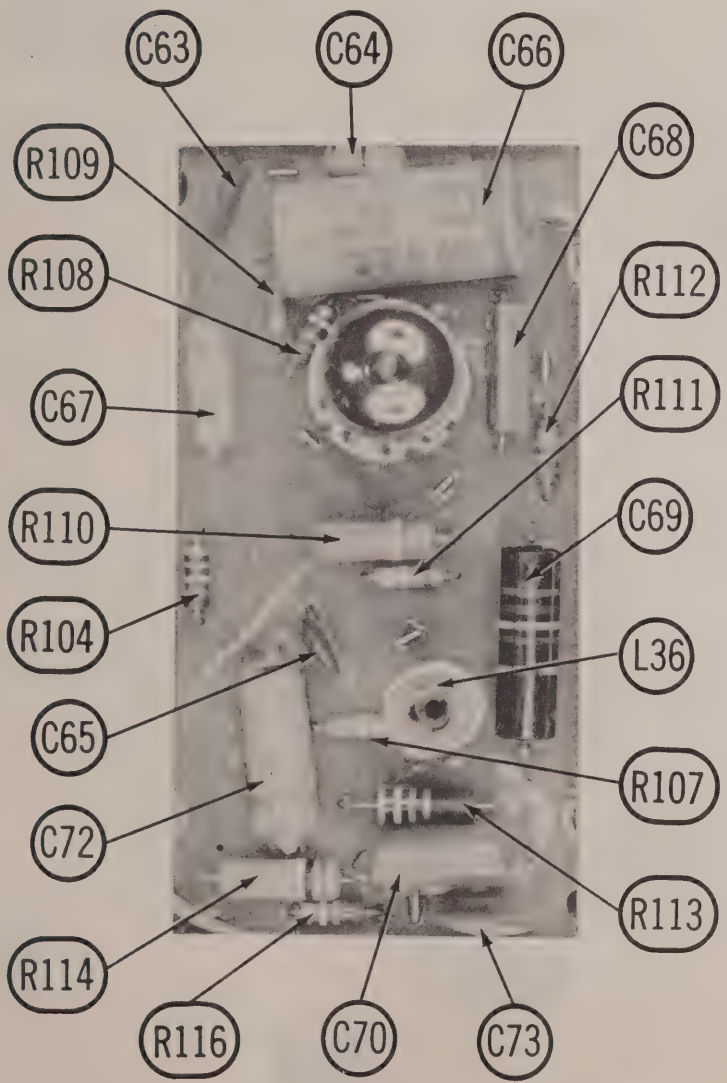
CONVERGENCE BOARD



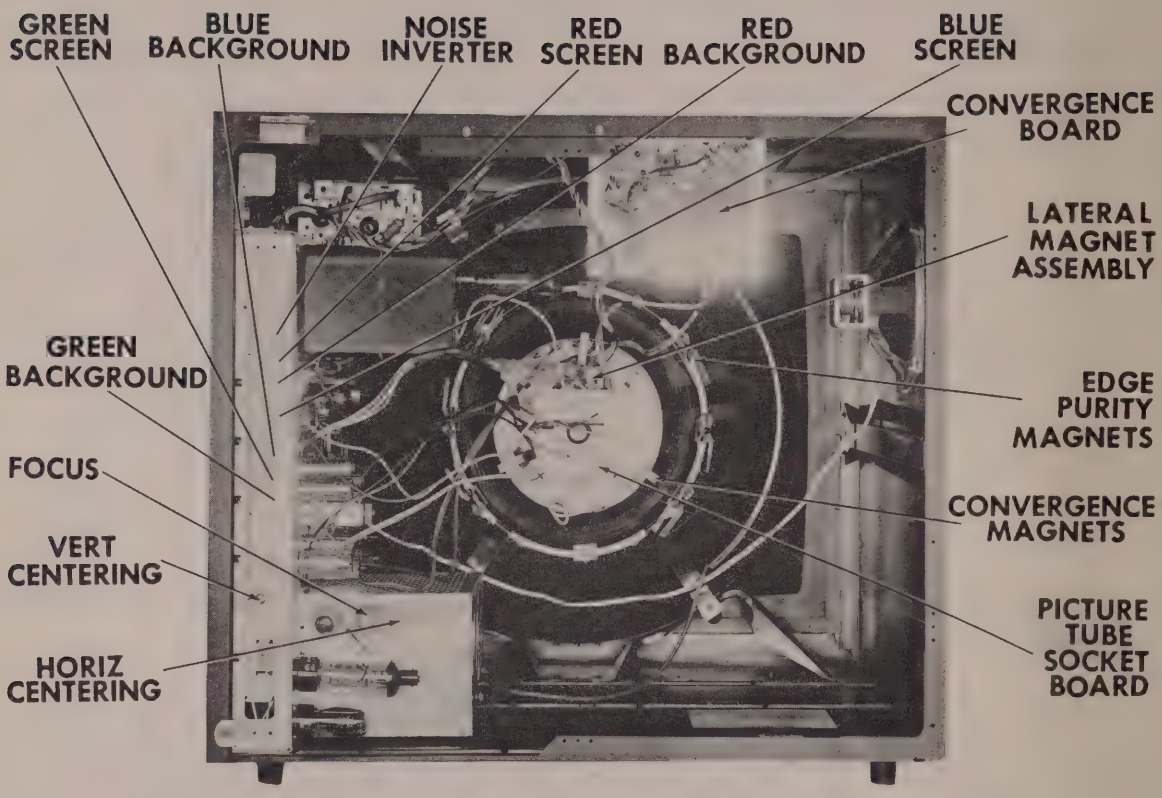
VERTICAL PRINTED BOARD



PICTURE TUBE SOCKET



HORIZONTAL PRINTED BOARD



CABINET—REAR VIEW

DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 10 push-on type knobs from the side.

2. Remove 8 metal screws and 1 spring clip holding the rear cover. Remove the rear cover.

3. Remove the speaker leads, picture tube socket, yoke plug, convergence yoke plug and HV lead (inside HV compartment).

4. Loosen 2 metal screws and remove convergence board.

5. Remove 1 chassis bolt at the upper left hand corner of the cabinet.

6. Remove 2 chassis bolts from the bottom.

7. Remove the chassis.

PICTURE TUBE SAFETY GLASS CLEANING

Remove the trim strips at the top and bottom edges of the safety glass by prying off starting at the extreme edges. Remove the 4 clips holding the safety glass. Remove the safety glass.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 14 IN SET 337

TRAV-LER MODELS 617-33U, 617-34U, 621-30U, 621-31U, 621-32U, 621-74U, 621-75U (Ch. 628A6)

Trav-Ler Models 617-33, 617-34, 621-30, 621-31, 621-32, 621-R40 (Ch. 627A6) were covered in Photofact Folder 14 - Set 337.

Models 617-33U, 617-34U, 621-30U, 621-31U, 621-32U, 621-74U, 621-75U (Ch. 628A6) are electrically identical to the models covered except for the following changes.

VHF/UHF TUNER ADDED

Models using Ch. 628A6 use VHF/UHF Tuner TA-28. A schematic showing the new tuner is given on the reverse side.

VIDEO IF SECTION CHANGED

With the addition of VHF/UHF Tuner TA-28, mentioned above, the Video IF Section changes from a 21MC IF to a 41MC IF. A partial schematic showing the 41MC IF Section is given in the Fig. below.

COMPONENT CHANGES

R80 is decreased from 1000Ω to 470Ω.

C71 is increased from 680mmf to 1000mmf.

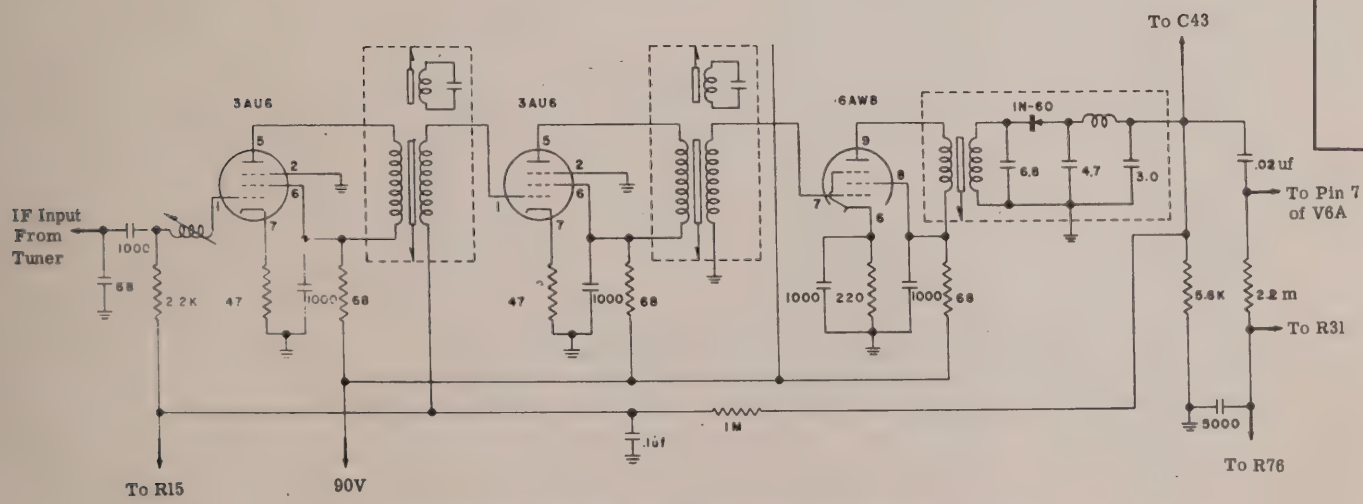
R31 is decreased from 150K to 68K.

R75 is omitted and R82, R83 and C82 are wired into the circuit as shown by dotted lines on the schematic in Photofact Folder 14 — Set 337.

R77 is increased from 100Ω ½ watt to 1000Ω 1 watt.

C81 is wired into the circuit as shown by dotted lines on the schematic in Photofact Folder 14 — Set 337.

PRODUCTION CHANGES
BULLETIN 209



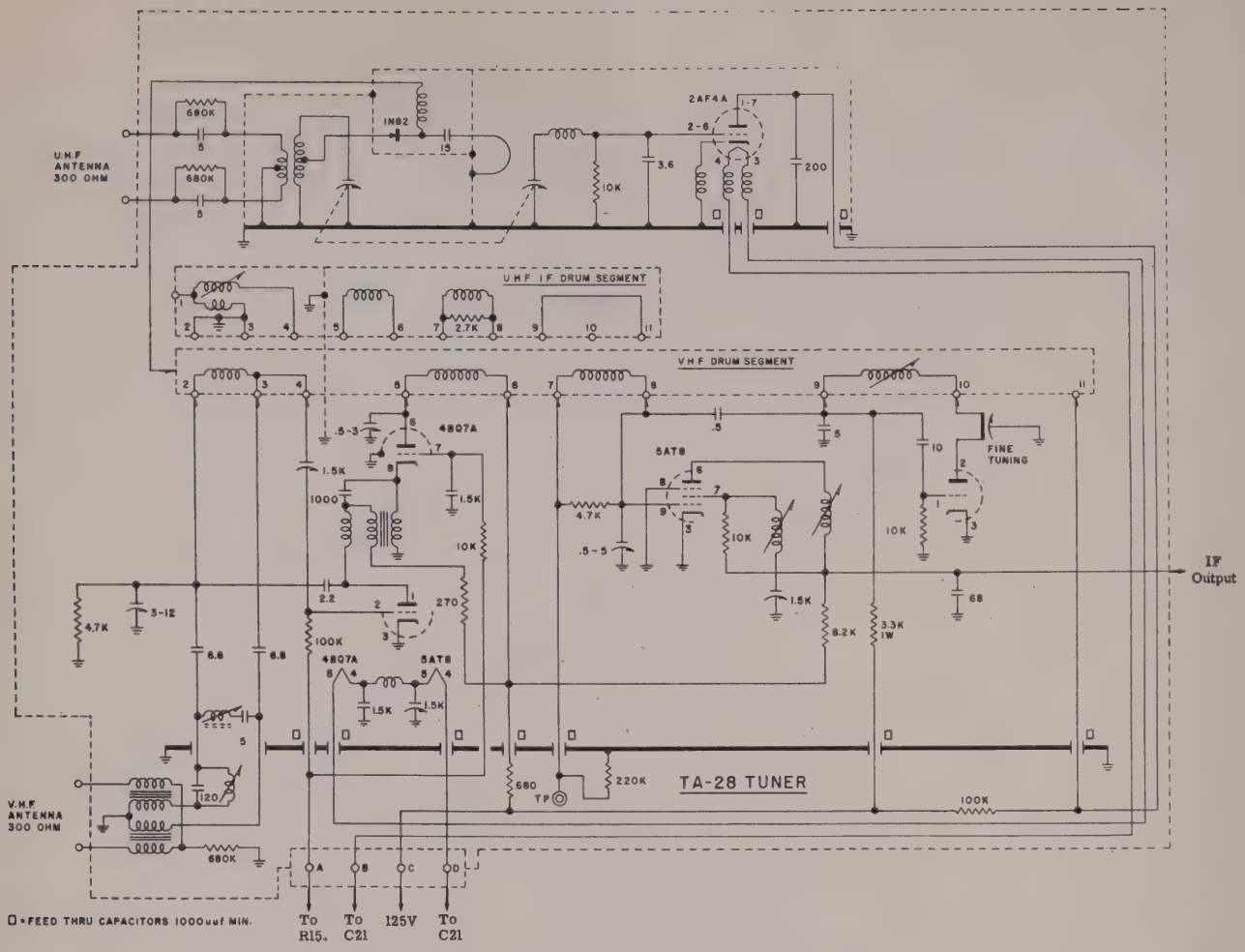
SCHEMATIC COURTESY TRAV-LER RADIO CORPORATION

(Continued on Reverse Side)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

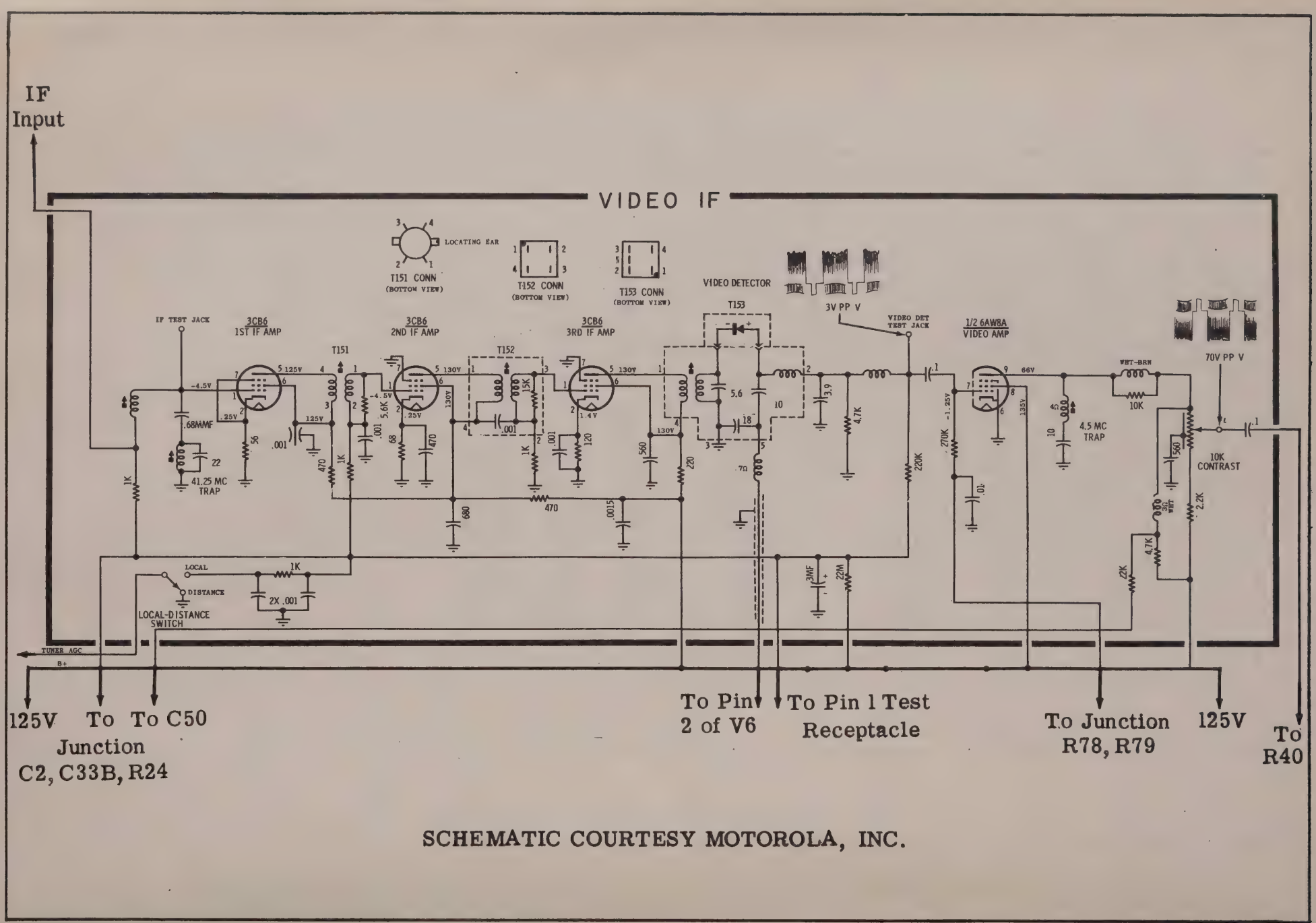
SET 399 FOLDER 4



SCHEMATIC COURTESY TRAV-LER RADIO CORPORATION

	Motorola Models Y14P3-1, Y14P3-2, Y14P4-1, Y14P5-1, Y14P5-2, Y14P5-3, Y14P6-1, Y14P7-1, Y14P7-2, Y14P8-1, Y14P8-2, 14P3-1, 14P3-2, 14P4-1, 14P5-1, 14P5-2, 14P5-3, 14P6-1, 14P7-1, 14P7-2, 14P8-1, 14P8-2 (Ch. TS-423, A, Y, TTS-423, Y, WTS-423, Y) were covered in Photofact Folder 7 — Set 366. Models Y14P6A-1 and 14P6A-1 (Ch. VTS-423) are added along with late production changes, with the publication of this bulletin.
Code B-02-1, B-03	TO IMPROVE FRINGE AREA RECEPTION The VHF Tuner is changed to TT-86D and is electrically identical to Tuner WTT-86, except for the following. C3 is decreased from 150mmf to 15mmf. R11 is disconnected from ground and reconnected to the junction of C8 and R14. A 1000mmf @ 500V ceramic disc capacitor is added from the junction of C8 and R14 to ground. A 100mmf @ 500V ceramic disc capacitor is added from the junction of C14 and L28 to ground. TO IMPROVE VERTICAL CENTERING R80 is decreased from 1meg to 470K.
Code B-04	COMPONENT CHANGES C77 is omitted. R58 is omitted.
Code B-05	TO REDUCE 4.5MC DRIFT C42 is replaced with a special selected capacitor, Part #21K125707. The 4.7mmf capacitor in L41 is replaced with a special selected capacitor, Part #21R121154. The 10mmf capacitor in L41 is replaced with a special selected capacitor, Part #21R121114.
Code C-00	VIDEO IF SECTION REVISED The Video IF section has been revised. A partial schematic showing the new circuit is given on the reverse side. On page 13 of Photofact Folder 7 — Set 366 the following part numbers are changed on the alternate Video IF circuit. The 2nd. Video IF transformer part number is changed to Part #24C743768. The 3rd. Video IF transformer part number is changed to Part #24C743767. TO INCREASE AUDIO OUTPUT The part number for L40 (1st. Sound IF) is changed to Part #24K746552. C38 is increased from 1500mmf to 3300mmf.
Code C-01	COMPONENT CHANGE A 560mmf @ 2000V ceramic disc capacitor is added from the shell of R2 (contrast) to ground, Part #21R128032.
Code C-02	TO IMPROVE VIDEO RESPONSE C25 is omitted. The 3rd. Video IF transformer part number is changed to Part #24K746844. A 1.8 microhenry choke is added from the junction of L34 and L35 to ground, Part #24K746772. A 4.7mmf @ 500V capacitor is added from the junction of L34 and L35 to ground.

(Continued on Reverse Side)



SCHEMATIC COURTESY MOTOROLA, INC.

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

BELL SOUND MODEL 5615

BELL SOUND MODEL 5615

BELL SOUND MODEL 5615

TRADE NAME	Bell Sound Model 5615
MANUFACTURER	Bell Sound Systems, Inc., 555 Marion Road, Columbus 7, Ohio
TYPE SET	AC Operated Three Channel 15 Watt Audio Amplifier (Some versions may use a 3 Speed Manual Record Player Model 563-PT)
TUBES (Seven)	Types 5879 Mic 1 Preamplifier, 5879 Mic 2 Preamplifier, 12AX7 Tape Phono Preamp. - AF Amp., 12AX7 AF Amp. - Phase Inv., (2) 6V6GT Output, 5Y3GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .82 Amp. @ 117 Volts AC (83 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H387

SET 399 FOLDER 5

PARTS LIST AND DESCRIPTIONS

BELL SOUND MODEL 5615

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Mic 1 Preamplifier	5879	
V2	Mic 2 Preamplifier	5879	
V3	Tape Phono Preamp. - AF Amplifier	12AX7	
V4	AF Amp. - Phase Inv.	12AX7	
V5	Output	6V6GT	
V6	Output	6V6GT	
V7	Rectifier	5Y3GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BELL SOUND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	20	450		PR3-055	BBRQ0500	FP389.1	TMT-156	FMD-4520 MTH-5010	R2580 *
B	10	450							
C	100	50							
C2A	10	450		PRS450V1010	BBRT11145	TCD72	TDLD-26	FMD-4510	TVA-2722
B	10	450							
C3	150	15		PRS50V150	BR1505	TC1502	TD-150-50	MT-15150	TVA-1311

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA BELL SOUND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C5	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C6	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C7	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C8	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C9	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C10	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C11	.001	400		P488N-001	D6-102	CUB6D1	GP-1000	GEM-621	6TM-D1	
C12	.0047	400		P488N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C13	47			1469-000047	D6-470	22R5Q47	ED-47		MS-447	10%
C14	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C15	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C16	.01	400		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C17	180			1469-00018	D6-181	22R5T18	ED-180		MS-318	10%
C18	180			1469-00018	D6-181	22R5T18	ED-180		MS-318	10%

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BELL SOUND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	B20066P143	B-76	A47-2meg-Z	Q13-139	U55	Tone
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 *	SWE-12	76-1	US-26	
R2A	500K	½	B20066P142	B-60	A47-500K-Z	Q13-133	U48	Phono
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	500K	½	B20066P142	B-60	A47-500K-Z	Q13-133	U48	Mic 2
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R4A	250K	½	B20066P145	B-51	A47-250K-Z	Q13-130	U44	Mic 1
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R5A	100Ω	2	B20066P141	WN-101	A43-100	WPK100	R11L	Hum Adj. (Wire wound)
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	

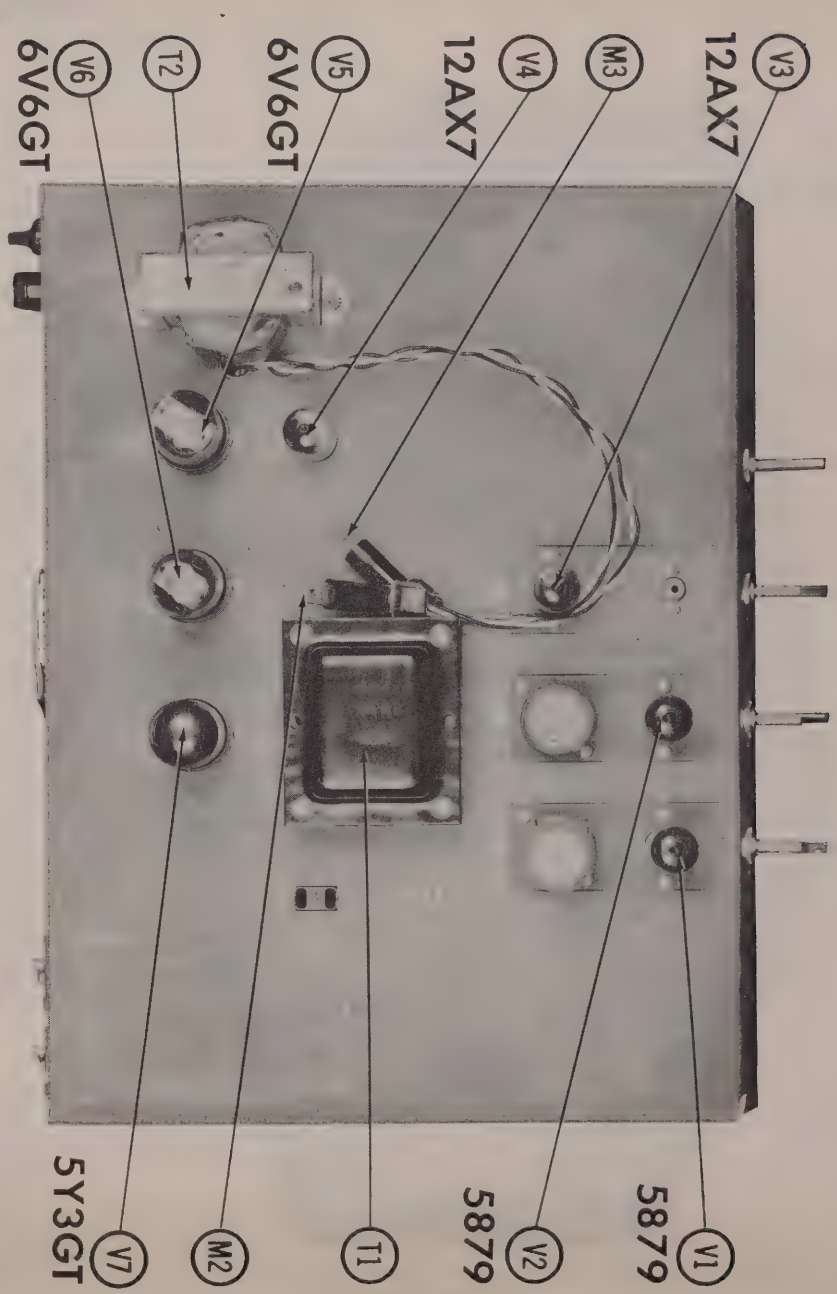
* Use KR-1 on Red Label control; use KB-1 on Blue Label control.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	BELL SOUND PART No.	NOTES
R6	2.2meg			
R7	150K			
R8	75K 5%			
R9	15K			
R10	2.2meg			
R11	150K			
R12	75K 5%			
R13	15K			
R14	1.2meg			
R15	150K			

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	BELL SOUND PART No.	NOTES
R16	8200Ω			
R17	150K			
R18	150K			
R19	150K			
R20	180K			
R21	2700Ω			
R22	47K			
R23	270K			
R24	470K			
R25	5600Ω			
R26	560K			

ITEM No.	RATING OHMS	RATING WATT	BELL SOUND PART No.	NOTES
R27	1.2meg			
R28	220K			
R29	3300Ω			
R30	220K			
R31	270K			
R32	250Ω	5		
R33	270K			
R34	2200Ω	2		
R35	10K	1		
R36	10K	1		
R37	270K	1		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA BELL SOUND PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V @ .82A	760VCT @ .100A	5V @ 2A	B20349 ①						
	SEC. 3	SEC. 4	SEC. 5							
	6.3V @ 2.4A									

① Alternate Part #B20319

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA BELL SOUND PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6500Ω CT	500Ω Tap @ 70V, 16Ω 8Ω, 4Ω	B20307							

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA BELL SOUND PART No. FUSE	BELL SOUND PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M1	3AG	3A 250V			312003. (3AG 3A 250V)	342001	AGC3	HKP

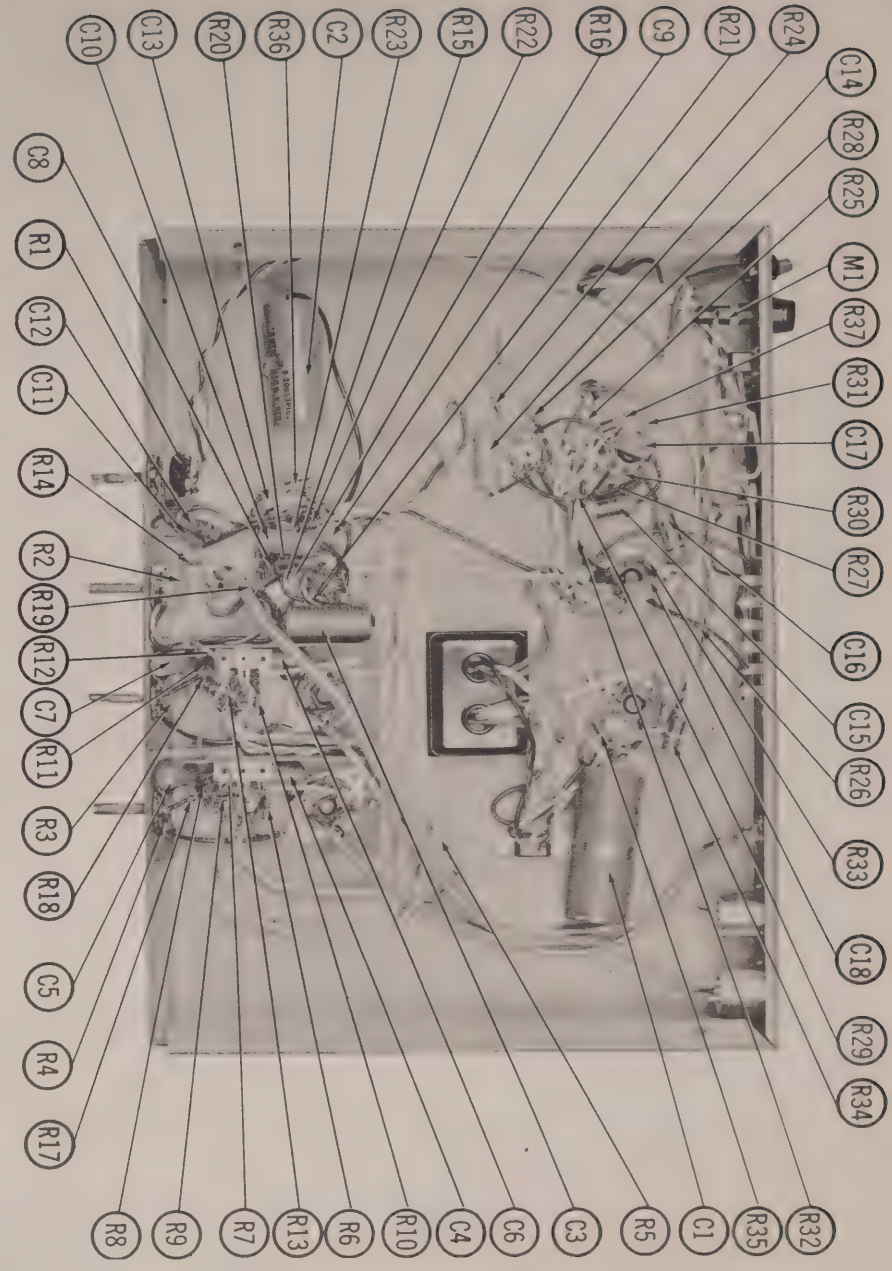
MISCELLANEOUS

ITEM No.	PART NAME	BELL SOUND PART No.	NOTES
M2	Pilot Lamp		#44
M3	Pilot Lamp		#44

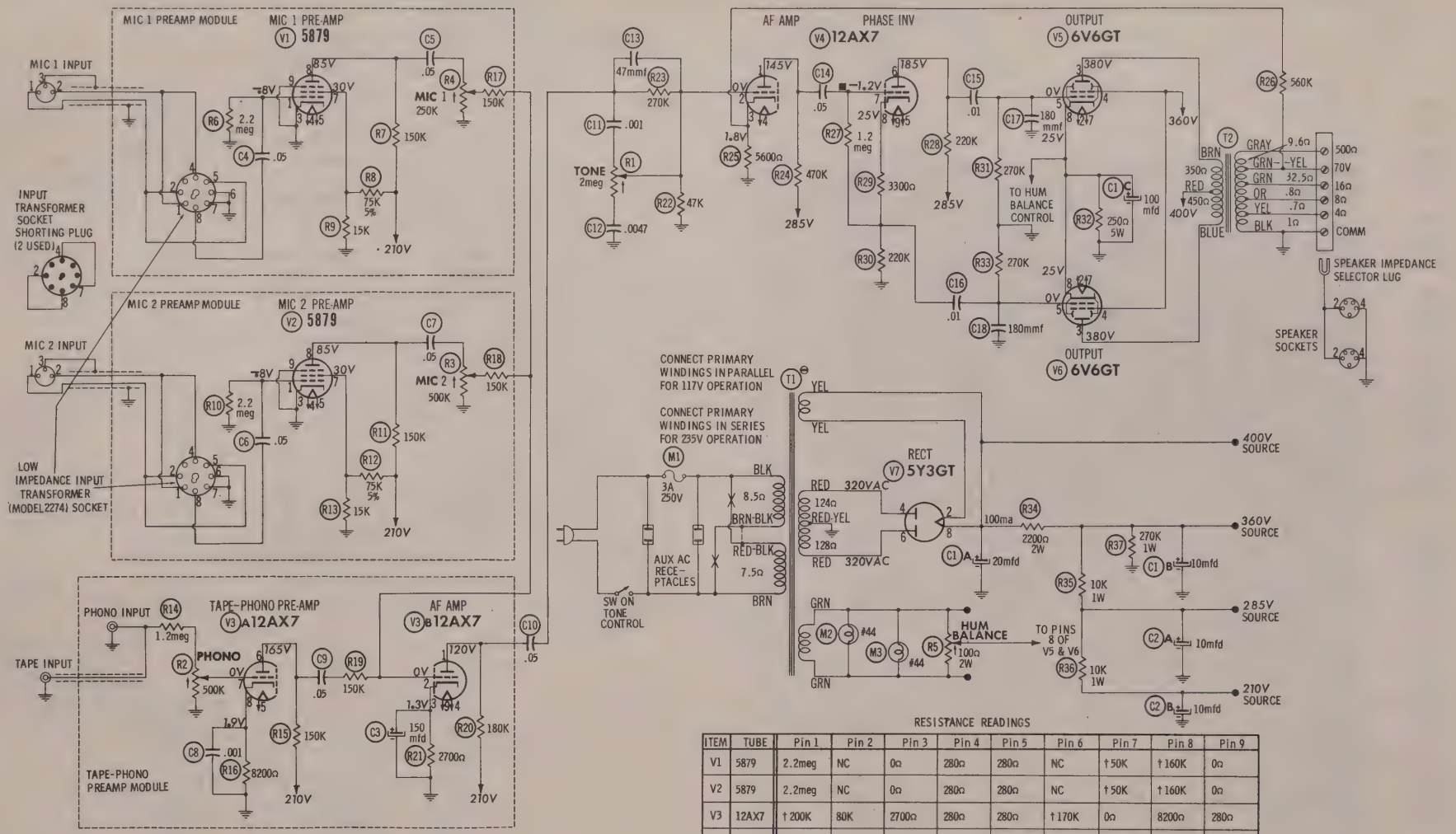
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW



BELL SOUND MODEL 5615



RESISTANCE READINGS

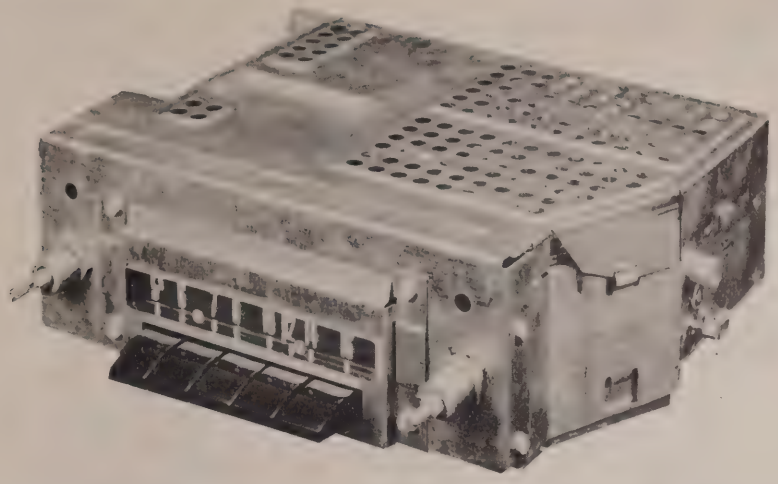
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	5879	2.2meg	NC	0Ω	280Ω	280Ω	NC	†50K	†160K	0Ω
V2	5879	2.2meg	NC	0Ω	280Ω	280Ω	NC	†50K	†160K	0Ω
V3	12AX7	†200K	80K	2700Ω	280Ω	280Ω	†170K	0Ω	8200Ω	280Ω
V4	12AX7	†480K	47K	5600Ω	280Ω	280Ω	†230K	1.4meg	220K	280Ω
V5	6V6GT	TP	280Ω	†350Ω	†2200Ω	270K	TP	280Ω	250Ω	
V6	6V6GT	TP	280Ω	†450Ω	†2200Ω	270K	TP	280Ω	250Ω	
V7	5Y3GT	NC	20K(Min)	TP	124Ω	TP	128Ω	NC	20K(Min)	

, † MEASURED FROM PIN 8 OF V7
■ MEASURED FROM PIN 8 OF V4
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



TRADE NAME	Ford Models 74BF (FEG-18805) For 1957 Ford Automobiles; 84BF (B8A-18805-B) For 1958 Ford Automobiles
MANUFACTURER	Bendix Radio, Div. of Bendix Aviation Corp. , Baltimore 4, Maryland
TYPE SET	Battery Operated Custom Built AM Automobile Receiver with Transistorized Output
TUBES (Four)	Types 12CX6 RF Amplifier, 12AD6 Converter, 12CN5 If Amplifier, 12J8 Det. -AVC-AF Amp.
POWER SUPPLY	12 Volt Storage Battery — RATING 1.4 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540-1600 KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Set tone control to high.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1 mfd	High side to pin 7 (grid) of 12AD6 (V2) Low side to B—	262.5KC (400% Mod)	Hi Freq. End Stop	Across Voice Coil	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1.	Thru dummy to Ant. Receptacle	1605KC	"	"	A5, A6 A7	"
	Steps 3 and 4 are not necessary unless tuning cores or coils have been replaced or tuner tampered with. If necessary, back tuning cores out of coils but not out of coil forms.						
3	Fig. 1	Thru dummy to Ant. Receptacle	1605KC	High End Stop	Across Voice Coil	A5, A6 A7	Adjust for maximum output
4.	"	"	1000KC	Tuning carriage ½" from high freq. end stop	"	A8, A9 A10	Adjust for maximum output Repeat steps 3 and 4 until no further improvement can be obtained.
	With radio installed in car and antenna fully extended, tune in a weak station near 1600KC and adjust A7 for maximum output.						

PUSHBUTTON ADJUSTMENT

1. Tune manually to desired station
2. Pull out pushbutton. Press pushbutton in firmly.
3. Repeat for remaining pushbuttons.

TRANSISTOR BIAS ADJUSTMENT (R2)

Connect an accurate low range DC voltmeter across R15. Adjust R2 for a meter reading of .42 volts. This is equivalent to an emitter current of 420MA, the maximum safe value.

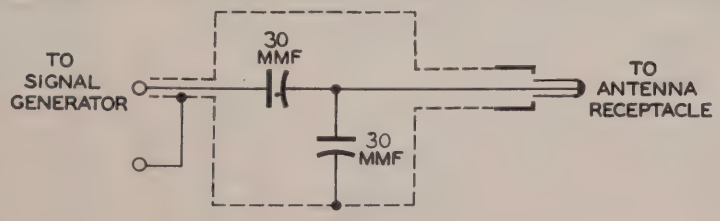


FIG. 1

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana . Printed in U.S. of America

H356

FORD MODELS 74BF (FEG-18805), 84BF (B8A-18805-B)

SET 399 FOLDER 6

PARTS LIST AND DESCRIPTIONS

FORD MODEL 74BF

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12CX6	
V2	Converter	12AD6	
V3	IF Amplifier	12CN5	
V4	Det. -AVC-AF Amp.	12J8	Note 1

Note 1. Type 12EM6 used in Model 84BF

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA				NOTES
			CBS PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2N155	Output	2N155	2N301		2N242	Note 1.

Note 1. Type 2N235B used in model 84BF

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	BENDIX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■250	16	220353-4			PWP200.6			R2564*
B	▲250	16							
C2	500	3	2090031-2 ①	PRS6V500	BR500-6	TC605	TD-500-6	MTH-0650	TVA-1103

①Not uses in model 84BF
* Non-Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	BENDIX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	4-75		219083-1							
C4	150		220350-501	NP0-DI150	DD-151	L10T15	ED-150	ZT-5315	5TCC-T15	10%
C5	82		220332-20		TCZ-82	L10Q82	ED-82			10% ①
C6	33		220332-19	N750-DI33	TCN-33	C10Q33U	TC7-33		5TCU-Q33	N750 10%
C7	.1	100	2090059A-104 M	P288N-1		CUB2P1		GEM-201	2TM-P1	
C8A	120-450									
B	370-445		219092-2							
C	100									
C9	51		220332-22							N1500 10%
C10	.1	100	2090059A-104M	P288N-1		CUB2P1		GEM-201	2TM-P1	
C11	1. 2		220212-13							②
C12	270		220348-508	NP0 -SI270	D6-271	L10T27	ED-270		MS-327	10%
C13	100		220332-14	N750-DI100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	N750①
C14	. 003	100	2090059A-302K					GEM-1623		10%
C15	. 0082	100	2090059A-822K					GEM-16282		10%③
C16	185		220267-14							
C17	185		220267-14							
C18	300		220267-12							
C19	200		220267-9							

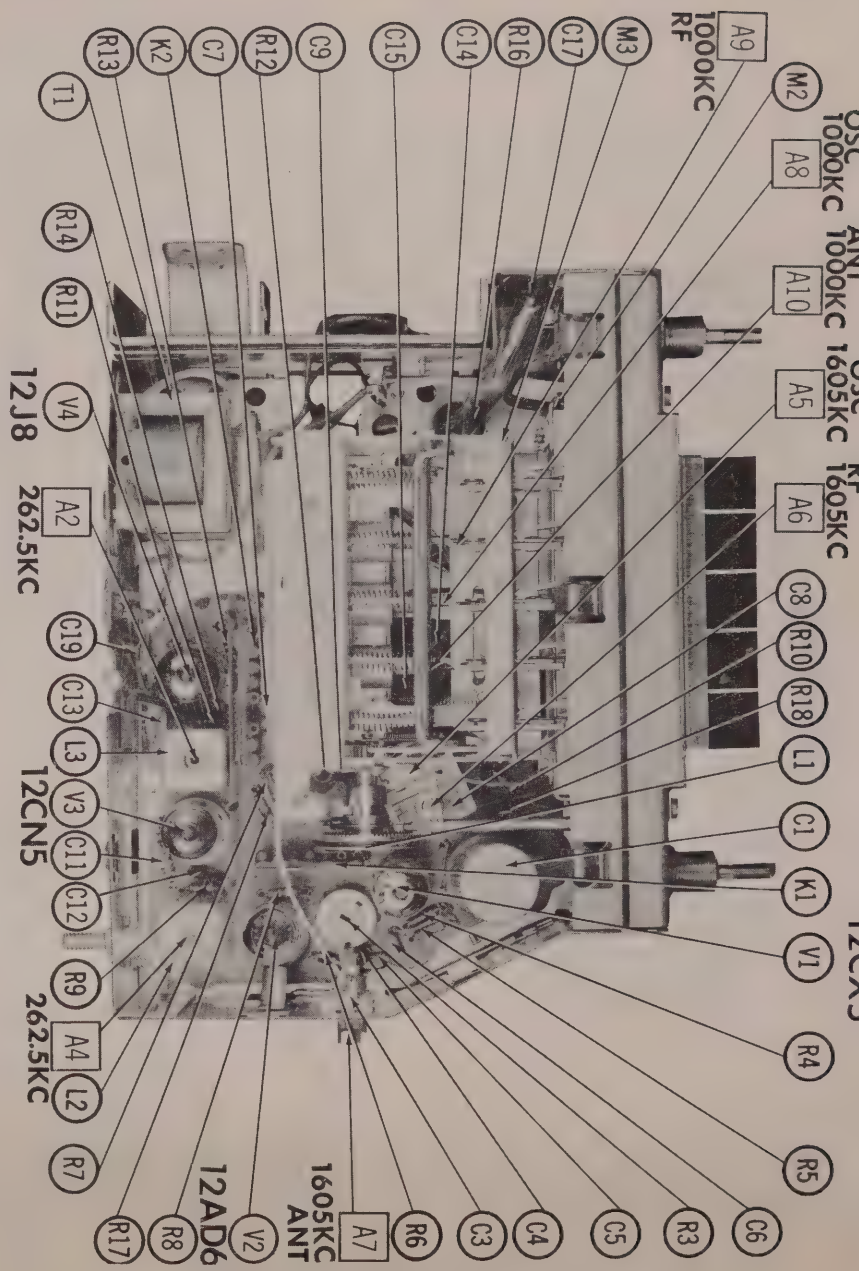
①Not used in Model 84BF
②In some versions this component consist of 1. 5 mmf track on printed circuit board.
③Model 84BF has . 0033mfd, in this application (Part # 2090059A-332K)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESIST-ANCE	WATTS	BENDI X PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	2meg	½	2090035-2				UE3769S ■	Tone Volume, Tap ⓐ 750K
B	1. 5meg	½						
C	Switch							
R2	600Ω	2	219555-14				FL-600S	Transistor Bias ①
R3	1000Ω	2	219682-2					Sensitivity (150Ω Stop) ②

①Part #2090573-2 (0-15Ω) used in Model 84BF
②Part # 219682-5 (0-600Ω) used in Model 84BF
■ "STA-LOC" Equivalent: FR26L, RU55T754, 0S937A, IS1437, US-42

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	BENDIX PART No.	NOTES
R4	1meg		220604B-105	Note 1
R5	330K		220604B-334	Note 2
R6	22meg		220604B-226	
R7	100Ω		220604B-101	
R8	33K		220604B-333	
R9	5.6meg		220603B-565	
R10	10meg		220604B-106	
R11	2.2meg		220604B-225	Note 3
R12	68K		220603B-683	Note4
R13	10Ω		220603B-100	Note 5
R14	330Ω		220603B-331	Note 5
R15	1Ω		2090438-5	Note 6
R16			220629-4	Note 7
R17	1000Ω		220604B-102	Note 8
R18	1Ω		2090438-6	Note 9

Note 1. 220K Used in Model 84BF (Part #220604B-224)
Note 2.680K Used in Model 84BF (Part #220604B-684)
Note 3. 1.5meg Used in Model 84BF (Part #220604B-155)
Note 4. Some 74BF versions use 47K in this application (Part #220603B-473). Model 84BF use 82K (Part #220603B-823)
Note 5. Not used in model 84BF
Note 6. Cupron wire,Part #2090438-8 used in Model 84BF
Note 7. Temperature compensating resistor 28Ω@25°C.Part # 2090574-2 (150Ω@25°C) used in Model 84BF
Note 8. Not used in some versions.
Note 9. Cupron wire. Part #2090438-9 used in Model 84BF.

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO PRI.	TURNS RATIO SEC.	REPLACEMENT DATA BENDIX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	15:	1	2090037-1①						A-3X ②	①Part #2090576-2 used in Model 84BF ② Drill new mounting hole

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA BENDIX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	8Ω	3-4Ω	2090038-1							Part#2090038-2 Used in Model 84BF

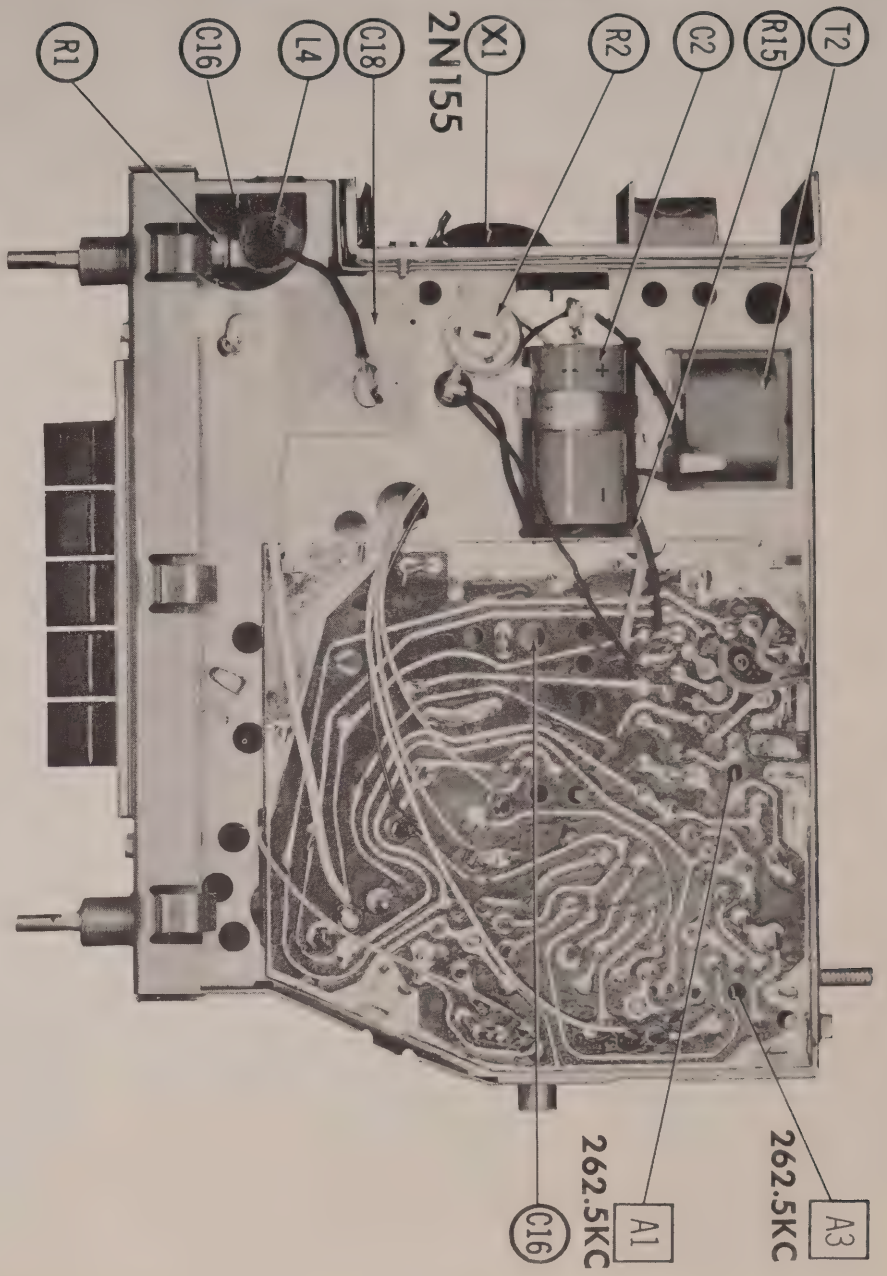
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA BENDIX PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1		PM	3-4Ω	282634-3		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA BENDIX PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	RF Coil	2090088-1					50 Microhenries wound on 18K Resistor
L2	Input IF	2090239-2					
L3	Output IF	2090237-2					
L4	Hash Choke	216188-11					130 Microhenries

CHASSIS—BOTTOM VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	BENDIX PART No.	REPLACEMENT DATA
K1	RF Amplifier Cathode and Mixer Grid	100mmf, 1000mmf 10%, 33meg, 330Ω (Seperate Item in Model 84BF), 10meg,	2090401-1 ① 2090578-1 ②	Erie 707-04 ①
K2	Audio Network	10000mmf, 68mmf, 15meg, 47K, 82Ω (Not used in Model 84BF), 47Ω (Seperate Item in Model 84BF)	2090402-1 ① 2090579-1 ②	Erie 709-09 ①

① Used in Model 74BF
② Used in Model 84BF

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BENDIX PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A 32V	AGA-5	221633-6	301005. (1AG 5A 32V)	155004	AGA5	HAF

MISCELLANEOUS

ITEM No.	PART NAME	BENDIX PART No.	NOTES
M2	Dial Lamp	57X	#57X
M3	Tuner	221470-3	(Complete) Model 74BF
	Tuner	221470-5	(Complete) Model 84BF
	Tuner Coil Ass'y	2090131-1	(RCC)
	Tuner Coil Ass'y	2090131-2	(OAK) Model 74BF
	Tuner Coil Ass'y	2090131-9	(GIC) Model 84BF
	Printed Circuit Board	2090510-1	Model 74BF
	Printed Circuit Board	2090710-1	Model 84BF

PARTS LIST AND DESCRIPTIONS (Continued)

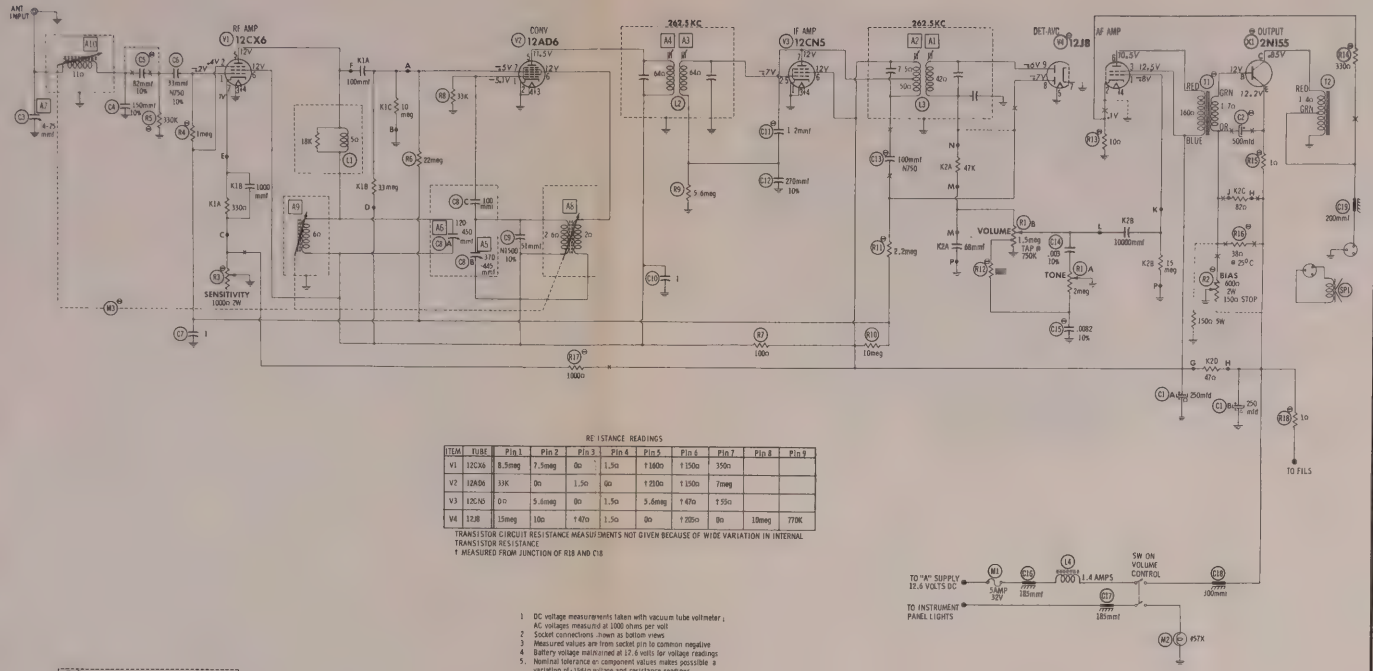
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Bezel	2090366-1	Model 84BF
Bezel	2090008-1	Model 74BF
Knob	2090007-1	Tone Control (2Used)
Knob	2090016-1	On-Off-Volume and Tuning
Dial Pointer	2090130-1	(RCC)
Dial Pointer	2090130-9	(GIC)
Pushbutton	686576-1	5Used. Model 74BF
Pushbutton	686576-2	5Used Model 84BF

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire ..... Use BELDEN No. 8885
Bonding Strap ..... Use BELDEN No. 8661



RESISTANCE READINGS

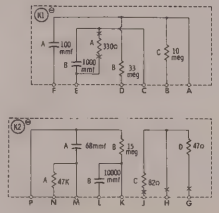
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12CX6	8.5meg	7.5meg	0Ω	1.5Ω	†160Ω	†150Ω	350Ω		
V2	12AD6	33K	0Ω	1.5Ω	0Ω	†210Ω	†150Ω	7meg		
V3	12CN5	0Ω	5.6meg	0Ω	1.5Ω	3.6meg	†47Ω	†55Ω		
V4	12J8	15meg	10Ω	†47Ω	1.5Ω	0Ω	†205Ω	0Ω	10meg	770K

TRANSISTOR CIRCUIT RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE
† MEASURED FROM JUNCTION OF R18 AND C18

1 DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt
2 Socket connections shown as bottom views
3 Measured values are from socket pin to common negative
4 Battery voltage maintained at 12.6 volts for voltage readings
5 Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6 Volume control at maximum, no signal applied for voltage measurements

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM



A PHOTOFACT STANDARD NOTATION SCHEMATIC
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EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

GLASER-STEERS
MODELS GS-77, GE, GED

GLASER-STEERS
MODELS GS-77, GE, GED

GLASER-STEERS
MODELS GS-77, GE, GED

GENERAL INFORMATION

Glaser-Steers Model 77 Record Changers are designed to play in automatic sequence a stack of records and shut off after playing the last record.

The Glaser-Steers Model 77 Turntable pauses during change cycle. It resumes motion only after next record has come in to play position, and stylus is in lead-in grooves of record.

The sound output is muted, not only during change cycle, but also while arm is on the rest post during automatic or manual play.

Record separation is accomplished by movement of a finger in the center spindle. This finger directly separates records having a 1/4" centerhole.

Connect this changer to an outlet supplying 117 volts, 60 cycle AC only, unless otherwise specified.

Manufactured by:

Glaser-Steers Corporation
20 Main Street
Belleville 9, New Jersey

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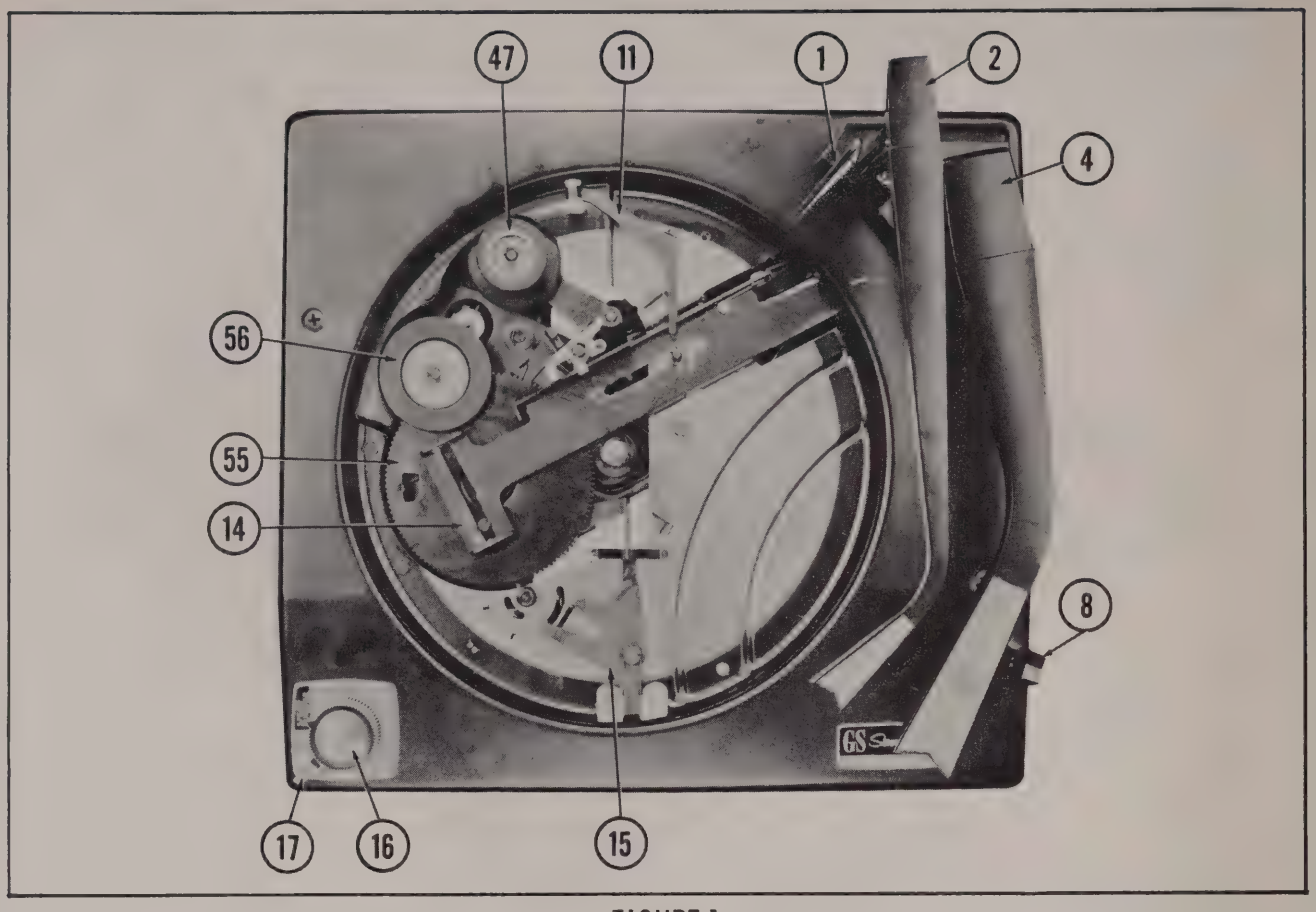


FIGURE 1

CONTROLS

Two controls are provided on the baseplate. Both are on the left front corner.

The bottom control is the "On-Off-Reject" control. Turning this control counterclockwise causes the tone arm to lift off the record, then return to the rest post. The mechanism will then shut off automatically.

Turning this control clockwise to the "On-Reject" position energizes the motor, and starts the mechanism in to cycle. The mechanism will shut off automatically after the last record has been played.

The top control is the "Speed Selector" control. By leaving the "Speed Selector" control in "Speed-Minder" position, you may play automatically all records (except 16 r.p.m.) without resetting the "Speed Selector". You need only select the proper stylus:

7, 10 and 12" records of both 33 and 45 r.p.m. speed may be intermixed in any order. They play at proper speeds. Be sure you use "33-45" stylus (LP, MG).

78 r.p.m. records of all sizes may be intermixed and will play at proper speed. Be sure you use "78" (Std.) stylus.

The speeds can also be changed by rotating the "Speed Selector" control counterclockwise from the "Speed Minder" position.

OPERATING INSTRUCTIONS

Operating With Selector Control At "Speed Minder"

1. Lift and move balance arm to the right. Then place 45 r.p.m. records (with center inserts), or 33 r.p.m. records, or both speeds intermixed on spindle; return balance arm and lower on top record.

2. After checking to be certain that 33-45 stylus is in play position, simply push "On-Off-Reject" control to "On" and release. (The changer will now automatically play all records you have loaded and will shut off after the last record.)

3. To play 78 r.p.m. records by "Speed Minder", simply be sure that when you load 78 r.p.m. records on spindle, stylus is in 78 position. Then push "On-Off-Reject" control to "On"

4. To reject a record, push "On-Off-Reject" control to "Reject" and release. To discontinue play, push control to "Off" and release.

Automatic Operation At 16 rpm

1. Set "Speed Selector" control at 16 r.p.m.

2. Turn stylus to 33-45.

3. Load records, lower balance arm, push control to "On".

Manual Operation

1. Move balance arm over rest post. Leave in that position during manual play. Place record on turntable. Set at speed desired.

2. Push operating control to "On". Tone arm will come in to 7" position. Move tone arm back to

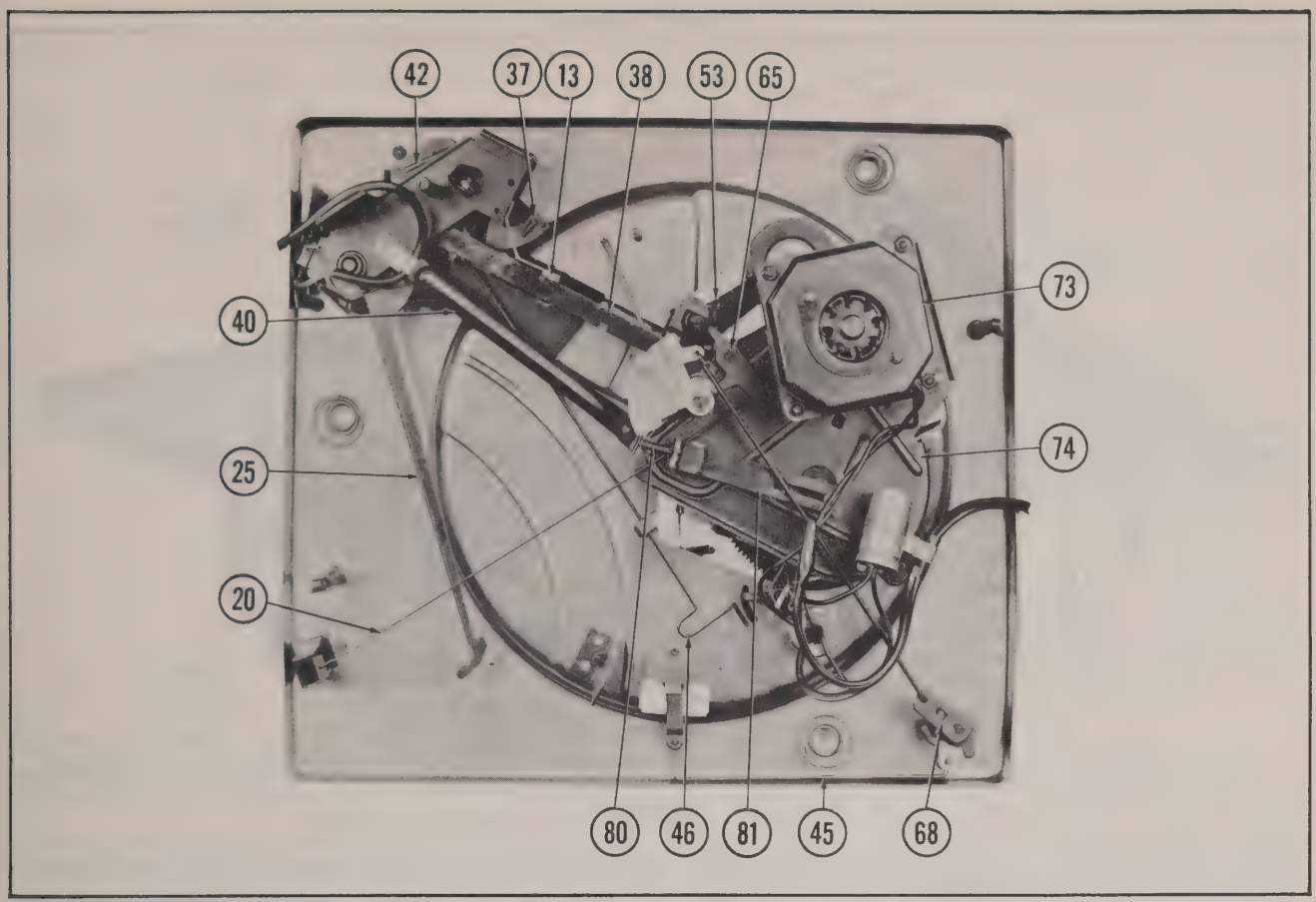


FIGURE 2

rest post. (You may stop tone arm, if you prefer, just before it lands on record, and then move it to rest post and leave it there).

3. Now, check to be sure you have "Speed Selector" control set correctly for your record, and the proper stylus chosen. Set tone arm on any position on the record and play.

NOTE: IN MANUAL PLAY, TONE ARM WILL NOT CYCLE AFTER PLAYING THE RECORD. HOWEVER, IF YOU WISH CHANGER TO STOP AUTOMATICALLY AFTER COMPLETION OF THE RECORD, MOVE BALANCE ARM OVER SPINDLE.

ADJUSTMENTS

Stylus Pressure Adjustment

Knurled nut (4A) for adjusting stylus pressure is located slightly to the rear of the tone arm center. With tone arm in horizontal position turn nut from right to left to reduce pressure; and from left to right to increase pressure. Adjust to pressure recommended for your cartridge.

Set-Down Adjustment

By lifting tone arm upward about 1" from rest post, set-down adjusting screw (4B) becomes accessible under rear of tone arm. Using any size record, adjust so that stylus comes to rest on the lead-in grooves. Turning screw (4B) clockwise moves stylus away from center.

Tone Arm Height Adjustment

By pivoting tone arm to an almost vertical position, height adjustment screw (4C) is visible. Adjust so that stylus stops 1/4" to 1/8" above changer base, when tone arm is lowered from rest post and mechanism is out of cycle.

CHANGE CYCLE

Observe the change cycle operation by manually rotating the turntable. The action described below can then be readily followed and each part's function more easily understood.

This changer has a "Velocity Trip" mechanism. Change cycle is started by the fast inward motion of the tone arm when the needle enters leadout grooves at the end of a record.

Tone arm hinge assembly and trip lever (25) are secured together so they move in unison. While a record is playing, the slight movement of trip lever (25) is not sufficient to trip the mechanism because the wiping action by trip lever washer (49) moves trip lever (25) back with each revolution of the turntable.

In the first revolution of the turntable, as the tone arm advances rapidly toward the spindle, trip lever (25) is moved fast enough and far enough to engage trip washer (49). Contact between trip lever (25) and trip lever washer (49) gives the necessary lift to force trip lock assembly (58) out of engagement with driver pinion arm (59). Driver pinion arm (59) is then pulled into contact with main gear (55), by action of spring

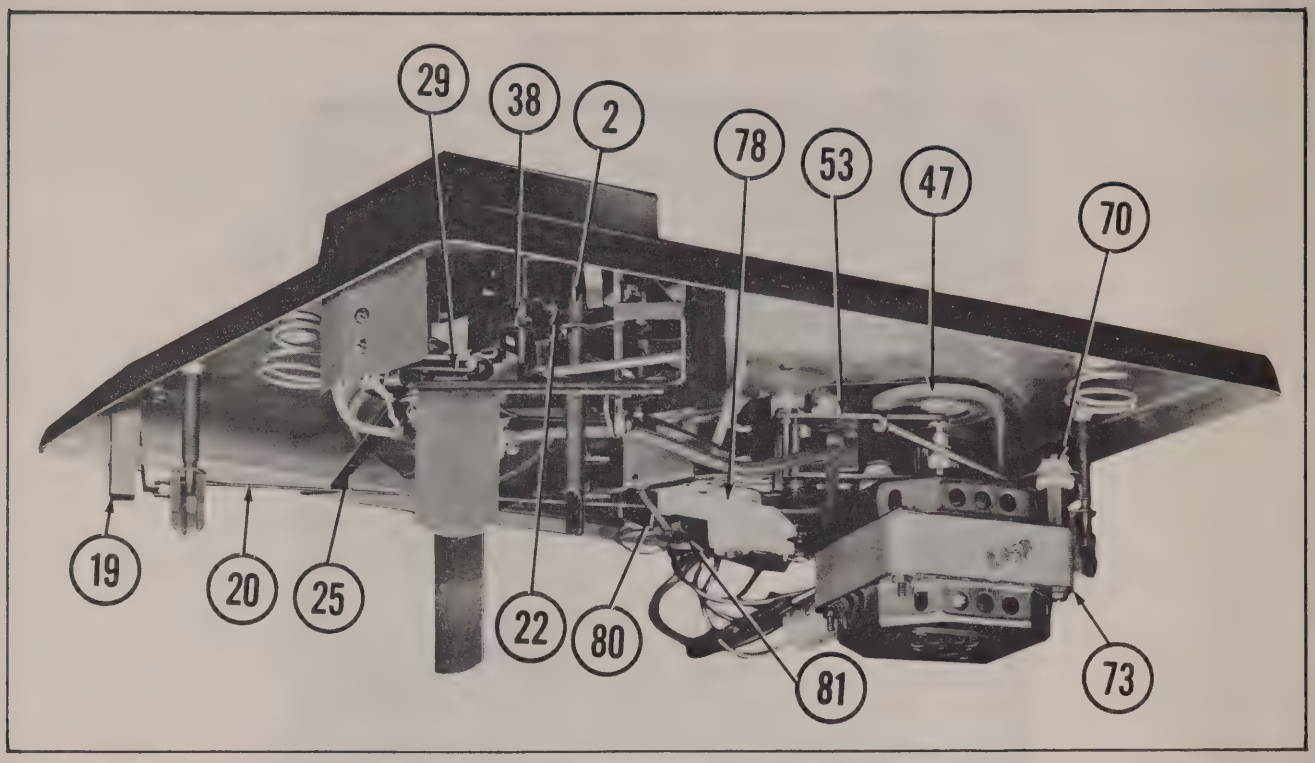


FIGURE 3

(60). Simultaneously, driver pinion wheel (56) engages the motor pulley, supplying driving force to main gear (55). As the main gear rotates, main slide (14) moves to the right thru the action of the eccentric mounted pin on main gear (55) riding in the cross slot on the main slide assembly (14).

As main slide (14) begins to move, cam (14A) (part of main slide [14]) will cause tone arm index cam (22) to move down. This pulls the back part of the tone arm hinge assembly down, lifting the front part of the tone arm up and off the record. Projection (14B) on rear of main slide (14) now comes in contact with spring (29), forcing the spring forward. Spring (29), tone arm hinge, and pivot assembly (21) are secured together so they move in unison. The action of spring (29), tone arm hinge, and pivot assembly (21) pivot the arm toward rest post (8).

As the tone arm moves toward the rest post, spindle actuating cam (72), attached to bottom part of main gear (55) has rotated far enough to actuate spindle slide (81), moving it to the left. Slide (81) actuates the spindle knives, dropping one record on the turntable. During the record drop, turntable (5) does not revolve, due to the braking action of brake lever (11), actuated by the main slide.

Simultaneously, index finger (1) moves forward by action of the main slide moving away from the index finger. As the record drops to the turntable, the record either strikes or misses index finger (1), depending on the size of the record. In the case of a 7 inch record, the record completely misses the index finger (1). This causes index detent positioning lever (37) to be caught in the first notch, which in turn places index detent (33) in the first notch of tone arm index cam (22). The tone arm will now move out to the 7 inch set-down position. In the case of a 10 inch record, the record hits the index finger just enough to move the index finger to the next series of notches. The tone arm will now move out to the 10 inch set-down position. The 12 inch record acts the same as those described above, except the third series of notches comes into contact. The tone arm will now move out to the 12 inch set-down position.

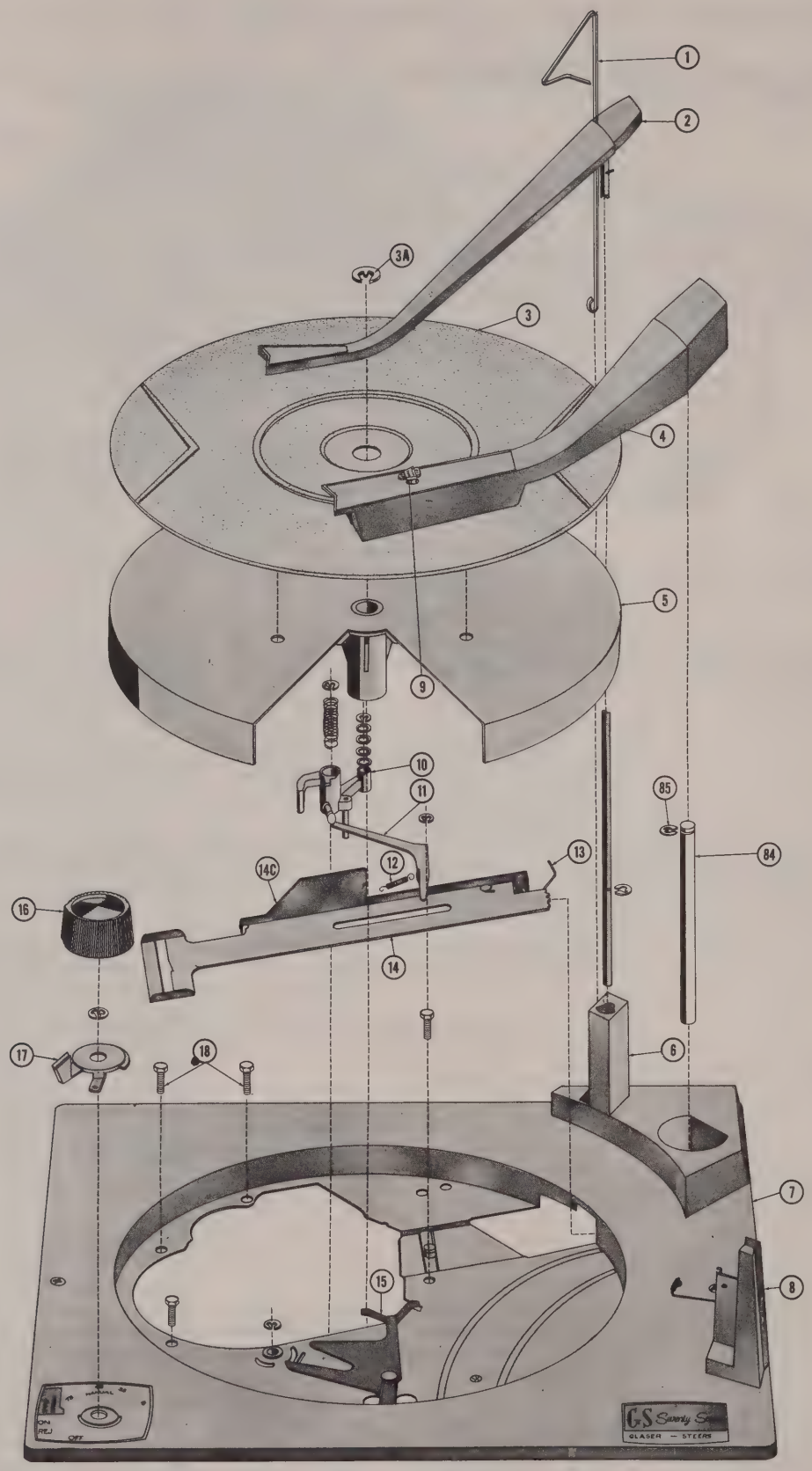
As main slide (14) continues to move forward, spring (29) is released. The tension built up due to the main slide forcing the spring forward will move the tone arm out over the record. About this time, tone arm index cam (22) moves down cam (14A). This action places the tone arm down on the lead-in grooves of the record. Main gear now rotates to its out of cycle position, allowing the tone arm to move freely across the record.

After the mechanism has been tripped, it again follows the preceding sequence of cycling and playing the records, until the last record of the stack has been played.

As the last record of the stack drops to the turntable, balance arm (2) drops below the shelf on spindle assembly (82). Lower end of balance arm (2) contacts balance arm wire (46), forcing it downward. The balance arm wire holds index detent stop lever (36) up. Index detent stop lever (36) drops, thus blocking index detent positioning lever (37) from moving. Index detent (33) can then move to the last notch on tone arm index cam (22). This action will allow the tone arm to come to the rest post and remain there. The tone arm is held from moving in by action of index cam (22). Being in the last notch, slide bar (38), attached to index cam (22), is stopped from moving forward. When slide bar (38) fails to move in, switch actuating pivot wire (86) remains in the up position, holding switch actuating pivot (43) up and in contact with the projection on the bottom of main gear (55). As the projection on the main gear strikes switch actuating pivot (43), power is removed from the motor and the mechanism stops.

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
1. Changer does not function when control is turned to "On-Reject" position.	1. No power to motor.	Check to see that AC current is reaching motor. Check wiring connection at switch and motor.
	2. Line voltage too low.	Line voltage must be at least 105V.
	3. Cycle of mechanism not complete.	Remove snap ring that secures turntable on record spindle. Remove turntable by lifting it straight up. Turn main gear (55) with crank pin in counterclockwise direction till crank pin is in line with notch in main slide.
	4. Foreign lubricant on rubber tire (single tire wheel) that cycles changer.	Remove turntable and clean tire (56) with lint free cloth moistened with alcohol. Also clean motor shaft, wheel with 2 rubber tires (47) and inside of turntable rim.
2. "On-Off" control cannot be turned to "On-Reject" position.	1. Cycle of mechanism not complete.	Follow same procedure as given in 1-3.
3. Changer will cycle and tone arm will come in to playing position but turntable will not rotate.	1. Turntable idler wheel(47) not engaging motor shaft and turntable.	Check spring (71) on idler arm (53) to be certain that idler is being pulled toward the direction of motor shaft.
	2. (When switching speeds manually only). Excessive friction between cam (78) and pin that raises and lowers idler arm (53).	Lubricate top surfaces of steps on cam (78) that raises and lowers idler arm (53).
4. Turntable speed too slow or large variations in turntable speed.	1. Improper line voltage.	Line voltage should be between 105 and 130 volts.
	2. Oil or grease on turntable idler, motor shaft, or turntable.	Wash all surfaces that contact each other with alcohol. Be sure to wash all diameters on motor shaft.
	3. Binding in turntable.	With changer shut off, check freedom of turntable rotation by spinning it by hand. Turntable must coast freely for a considerable length of time. If binding or roughness occurs, remove the turntable clean bushing and spindle surfaces and relubricate with light oil. Check turntable thrust bearing for any foreign matter, clean and relubricate with "Vaseline".
	4. Misalignment between turntable idler (47) and diameters on motor shaft pulley.	Check alignment of turntable idler (47) and pulley diameters on motor shaft. Starting with the 78 R.P.M. position (largest diameter on motor pulley) and switching speeds from 78 to 16 R.P.M. the idler must raise and contact the respective diameters on the motor without touching any of the diameters below. If idler arm is bent (should be parallel to motor plate 74), straighten arm till alignment above is achieved.



A PHOTOFACT "EXPLODED" VIEW
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FIG. 4A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE

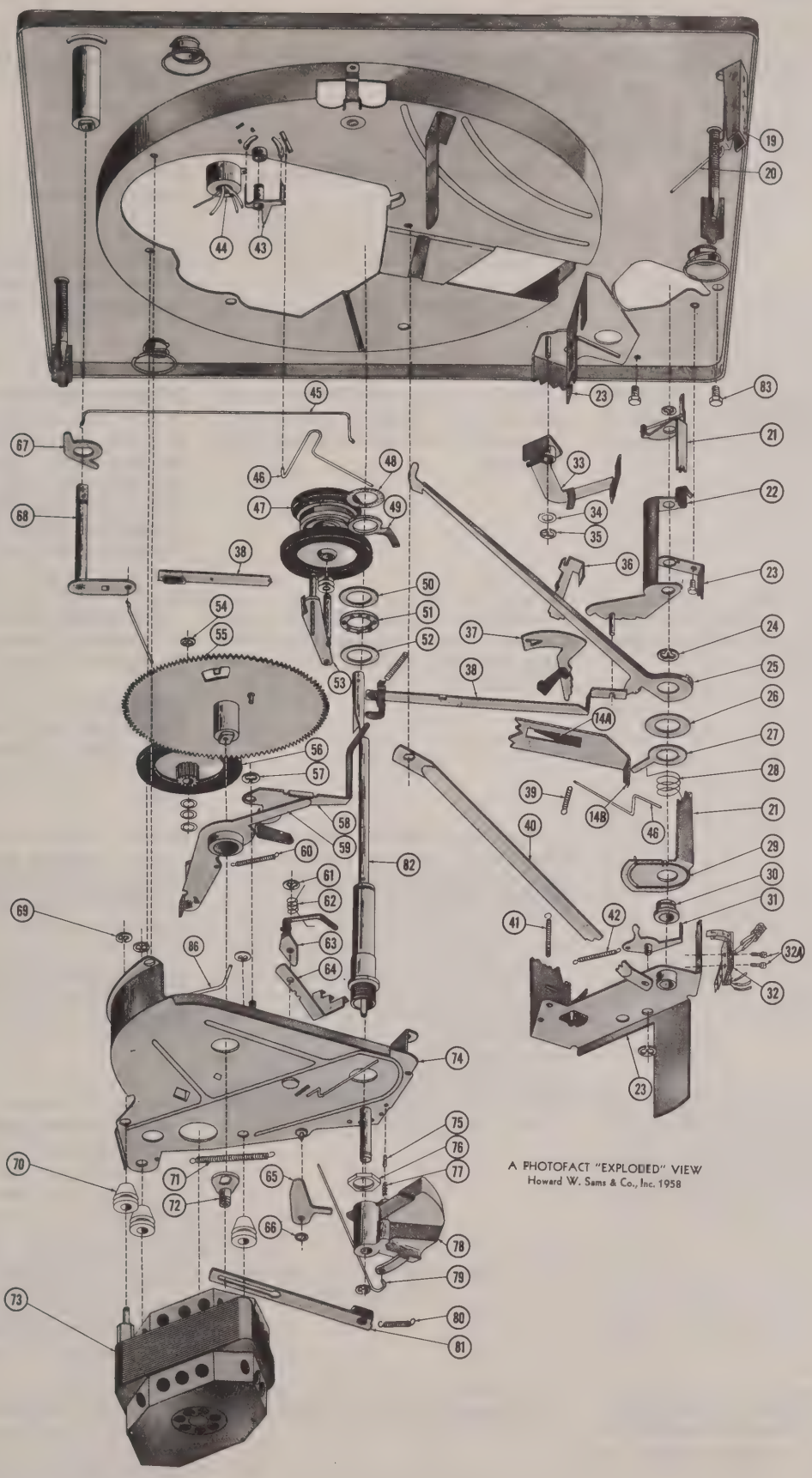


FIG. 4B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART (CON'T)

SYMPTOM	CAUSE	REMEDY
5. Difficulty in changing speeds manually.	1. Motor and switch wiring interfering with speed change wire link (79).	Move all wires so that wire link (79) is not restricted by them in any speed position.
	2. Idler arm (53) badly bent.	See procedure outlined under symptom 4, cause 4.
	3. Crank on speed control shaft (68) interfering with motor board.	Check mounting of changer on motor board, making certain that the mounting springs are properly seated in the holes provided.
6. With speed control in "Speed Minder" position and stylus set at "78" or Std. play, turntable does not turn at 78 R. P. M.	1. Needle turnover lever is not moving pivot blade in rest post (8) far enough to set the mechanism for 78 speed.	Adjust the cartridge in the tone arm so that the needle turnover lever projects at least 3/16 inch beyond the tone arm. Make sure the lever can enter the hole in the rest post without any interference. Cartridge bracket has elongated holes, thereby allowing centering of the turnover lever, in the rest post (8).
7. With record balance arm over spindle, changer will not cycle when a record is finished playing.	1. Velocity trip lever (25), long narrow lever below changer that moves with the tone arm, is not reaching trip cam (49).	Check to see that none of the power or cartridge leads are restricting the motion of the trip lever. The trip lever (25) is bent either too high or too low. The correct level of the free end should be in a range from 1/8 to 1/4 inch above the motor plate.
	2. Trip cam (washer with inclined wing below turntable hub) does not have sufficient friction from turntable to operate properly.	Remove turntable and thin soft washer. Before reinstalling, wipe any lubricant off top surface of trip cam (49) which is exposed when thin washer is removed.
8. Changer cycles by tripping through tone arm when operating in "Manual" position.	1. Velocity trip is not being blocked by lever (31) located near the lower bearing hole of the balance arm shaft. This lever (31) should bear under spring pressure against the balance arm shaft (2).	Refasten spring (42) between lever (31) and vertical side of large bracket.
9. Tone arm does not land at the beginning (lead-in grooves) of 7, 10, 12 inch records. (Set-down adjustment).	1. Improper adjustment.	The set-down adjustment screw (4B) is located at the front end of the tone arm bracket. It can be readily identified by the coil spring that surrounds it. Turning the screw head 1/2 turn in a clockwise direction moves the tone arm approximately 1/8 inch to the right (measured at the stylus). Adjust so that stylus lands approximately midway in the margin found at the beginning of all records.
10. Tone arm does not drop sufficiently to play first record or tone arm interferes during cycling.	1. Improper height adjustment.	The height adjustment screw (4C) is located in the bracket that mounts the tone arm. It is located midway between the 2 screws that secure the arm. One complete turn in a clockwise direction lowers the tone arm approximately 1/8 inch. Tone arm

SYMPTOM	CAUSE	REMEDY
		height should be set so that the bottom edge of tone arm clears the highest point of the rest post shelf by approximately 1/8 inch.
11. With balance arm (2) raised, turning control lever to "On - Reject" position, tone arm will not leave rest post during cycle and upon completion changer shuts off.	1. Improper height adjustment.	See procedure under 10.
	2. Improper set-down adjustment.	See procedure under 9.
12. Changer does not index for 10" records.	1. Improper interference between 10" record and index finger (1).	If tone arm comes in to 7" position instead of 10", this indicates insufficient interference between record and finger. Turn changer off and place a 10" record on the turntable. Bring the index finger by hand toward the spindle until completely forward. Raise the record along the spindle, keeping it parallel to the turntable. The record should interfere with nose of the index finger by approximately 3/32". The finger can be adjusted to this dimension by bending forward in the direction of the record. Do not overbend so as to exceed the 3/32" interference required. If tone arm comes in to 12" position instead of 10", interference between record and index finger is too great. Use same procedure as given above, however bend the index finger in the opposite direction away from the record until proper interference is achieved.
13. Changer repeatedly indexes for a 12" record.	Index finger (1) is not coming forward during cycle. Spring (41) on finger below disengaged or too weak.	Refasten spring if disengaged. If not disengaged, stiffen spring by removing coils (2 at a time) until finger returns to forward position during cycling time.
14. Changer drops 2 records at once.	1. Center hole in record too large.	Oversize holes will cause 2 records to fall at once.
	2. Small blade in upper portion of spindle (82) not fully down.	Straighten blade if bent so that it falls freely of its own weight. If not bent, clean slot and blade of any foreign matter and lubricant that may be present. Do not oil. Blade must fall freely by gravity.
15. Changer will not shut off automatically after playing last record.	Balance arm (2) does not move to its full downward position.	Clean balance arm shaft and bearing holes of any foreign matter and lubricate with light oil. Arm must be free enough to fall downward by gravity. Clear any lead wires that may be interfering with the lower end of the balance arm shaft.
16. With balance arm up, changer will shut-off after every cycle.	1. Lever (46) that operates power switch fails to fall to its downward position.	Clean shaft and bearing of switch lever of any foreign material. Wipe dry of any lubricant. Do not oil.

TROUBLE CHART (CON'T)

SYMPTOM	CAUSE	REMEDY
	2. Tone arm (4) does not leave rest post.	See procedure under 11.
17. Excessive low pitch noise (rumble) or thumping sound during record play.	1. Motor restrained from floating freely on rubber mounts.	Check to see that motor is not touching any part of cabinet. Clear any power leads that may be restricting the floating action of the motor.
	2. Damaged turntable idler (47).	If surface of rubber tire is not smooth or shows signs of distortion, idler (47) should be replaced.
	3. If power to changer is cut in mid-cycle and changer is left in this manner for any length of time, the rubber tires can develop a flat spot that will cause a thumping sound.	Run changer for at least 10 minutes. If thumping does not disappear, replace idler (47).
18. Tone arm does not track in record grooves.	1. Worn stylus in cartridge.	Replace.
	2. Improper tracking pressure for cartridge used.	Check tracking pressure for cartridge used and adjust to recommended value.
	3. Changer not level.	Relevel changer.
	4. Cartridge leads interfering with motion of tone arm.	Check to see that ample slack is provided in the tone arm leads so that the entire lateral travel of tone arm is not affected.
19. No sound during record play.	1. Defective cartridge.	Replace.
	2. Defective wiring.	Check cartridge leads for shorted or open leads.
	3. Loose cartridge terminal clips.	Remove clips from terminals squeeze slightly together and refasten to cartridge.
	4. Muting switch (32) out of adjustment.	Check to see that switch contact points operated by main slide have approximately 1/32" clearance when cycle is completed. If necessary, bend blade (32) that cams against main slide until this clearance is obtained. Cycle the changer and check to see that contacts are touching after the main slide withdraws. Check to see that curved contact arms are allowing approximately 1/64" clearance between contact points when tone arm is off rest post and in playing position. If necessary, bend blades to obtain this clearance. Check to see that contacts are touching when tone arm is replaced on rest post.

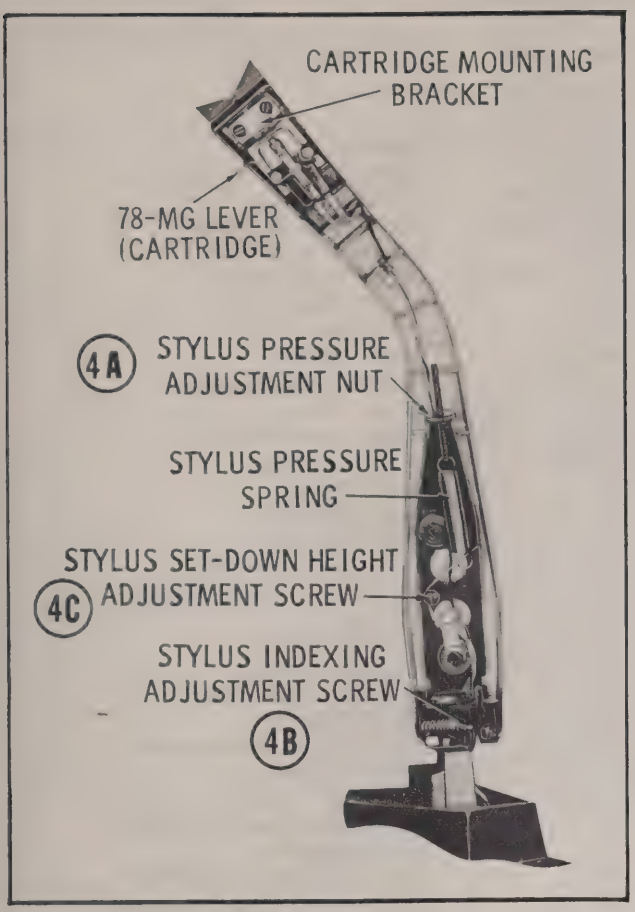


FIGURE 5

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows:
(Refer to the exploded view).

Apply Andox "B" or Texaco "Sta-Put" to:

1. Edge of all slots in main slide assembly (14).
2. Outer edges of main slide assembly (14).
3 Cam surface on main slide (14A).
4. Top of speed shift cam (78).
5. Slot in spindle slide (81).

Apply a small quantity of light oil to:

1. Bearing of index-tone arm bracket assembly (23).
2. Bearing of driver pinion arm assembly (59).

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description
1	11411-1	Index Finger
2	12007-1	Balance Arm
3	13403-1	Rubber Mat
3A	1424SBO-X43	Retaining Ring
4	5707-501	Tone Arm GS-77
	5707-502	Tone Arm GS-77GE
	5707-503	Tone Arm GS-77GED
5	13001-1	Turntable
6	13401-1	Balance Arm Support
7	5711-503	Base Plate Assembly (Top View)
8	5704-501	Rest Post
9		Cartridge
10		Speed Shift Cam
11	5702-504	Brake Lever Assembly
12	12926-5	Spring
13		Main Slide Spring
14	5702-503	Main Slide Assembly
15	5702-501	Switch Lever Assembly
16	12307-2	Speed Knob
17	10151-1	On-Off-Reject Lever
18	1021-11	Screws #6 x 3/16 (6)
19	5704-501	Rest Post Ass'y (Bottom View)
20		78 R.P.M. Positioning Wire
21		Tone Arm Hinge And Pivot Ass'y
22		Tone Arm Index Cam
23	5710-502	Index-Tone Arm Bracket Ass'y
24	1424SP	Retaining Ring
25		Trip Lever
26		Washer
27		Washer
28	12926-6	Trip Lock Ass'y Spring
29		Tension Spring
30		Spacer
31		Balance Arm Tension Lever
32	12956-1	Rest Post Muting Switch And Change Cycle Muting Switch
32A	1104-29	Screws 4-40 x 5/16 (2)
33		Index Detent
34		Washer
35		Retaining Ring
36		Index Detent Stop Lever
37		Index Detent Positioning Lever
38		Slide Bar
39		Spring
40		Bracket Support
41	12926-12	Index Finger Spring
42		Spring
43		Switch Actuating Pivot
44	11801-1	Power Switch
45	11401-1	On-Off-Reject Rod
46		Balance Arm Wire
47	12014-2	Idler Wheel Ass'y
48		Cloth Washer
49		Trip Lever Washer
50		Steel Washer
51		Ball Bearing Retainer
52		Steel Washer
53		Idler Arm Assembly
54		Retaining Ring
55		Main Gear
56		Driver-Pinion
57		Retaining Ring
58		Trip Lock Assembly
59		Driver-Pinion Arm Ass'y
60		Spring
61		Retaining Ring
62		Tension Spring
63		Speed Minder Lever
64		Speed Selector
65		78 R.P.M. Position Pawl
66		Retaining Ring
67		Speed Shift Stop
68		Speed Shift Shaft And Lever
69		Retaining Ring
70		Motor Mounting Grommet
71		Idler Wheel Tension Spring
72		Spindle Actuating Cam
73	13004-1	Motor (4 Pole)
74	5701-501	Motor Plate Assembly
75		Cam Pin
76		Spindle Mounting Nut
77		Compression Spring
78		Speed Shift Cam
79	11400-1	Speed Change Wire
80	12926-3	Spindle Slide Tension Spring
81	11000-1	Spindle Slide
82	12001-1	Spindle Assembly
83	1021-10	Screws # 6-3/8 Balance Arm Support
84	12925-1	Tone Arm Shaft Assembly
85	1424SP-X21	Retaining Ring
86		Switch Actuating Pivot Wire

MAGNAVOX CHASSIS AMP-166AA

TRADE NAME	Magnavox Chassis AMP-166AA
MANUFACTURER	Magnavox Co., 2131 Bueter Rd., Fort Wayne 4, Indiana
TYPE SET	AC Operated Phono Amplifier With 4 Speed Automatic Record Changer
TUBES (Four)	Types 12AX7 AF Amp. - Phase Inv., (2) 35C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .31 Amp. @ 117 Volts AC (29 Watts Without Motor)

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE SIMILAR V-M MODEL 1200A—PHOTOFACT SET 353 FOLDER 16

MAGNAVOX CHASSIS AMP-166AA

MAGNAVOX CHASSIS AMP-166AA

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

PARTS LIST AND DESCRIPTIONS

MAGNAVOX
CHASSIS AMP-166AA

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amp.-Phase Inv.	12AX7	
V2	Output	35C5	
V3	Output	35C5	
V4	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	MAGNAVOX PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■40	150	270023-24	AFH3-09	C0090	FP311.5	TMT-9	T-040	*R2312
B	▲40	150							
C	20	150							

* Non-catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	MAGNAVOX PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.047	600	250201-11	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C3	33		250187-47	1468-000033	D6-330	5W5Q33	GP-33	UC-5433	1FM-433	
C4	1500		250218-18	BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C5	2000		250218-20	BPD-002	DD-202	BYA10D2	ED-002	DC522	5HK-D2	
C6	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	10000		250175-2	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C9	.068	200	250202-12	P288N-068		CUB6S68		GEM-4168	4TM-S68	
C10	.068	200	250202-12	P288N-068		CUB6S68		GEM-4168	4TM-S68	
C11	.047	600	250201-11	P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C12	2.0	100								

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	MAGNAVOX PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	3.3meg	½	220131-11				UDT305	Loudness, Tap @ 350K & 1.5meg
R2A	3meg	½	220072-31	B-85	A47-3meg-Z	QI3-140	U57	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1meg	½	220072-32	B-70	A47-1meg-Z	QI3-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

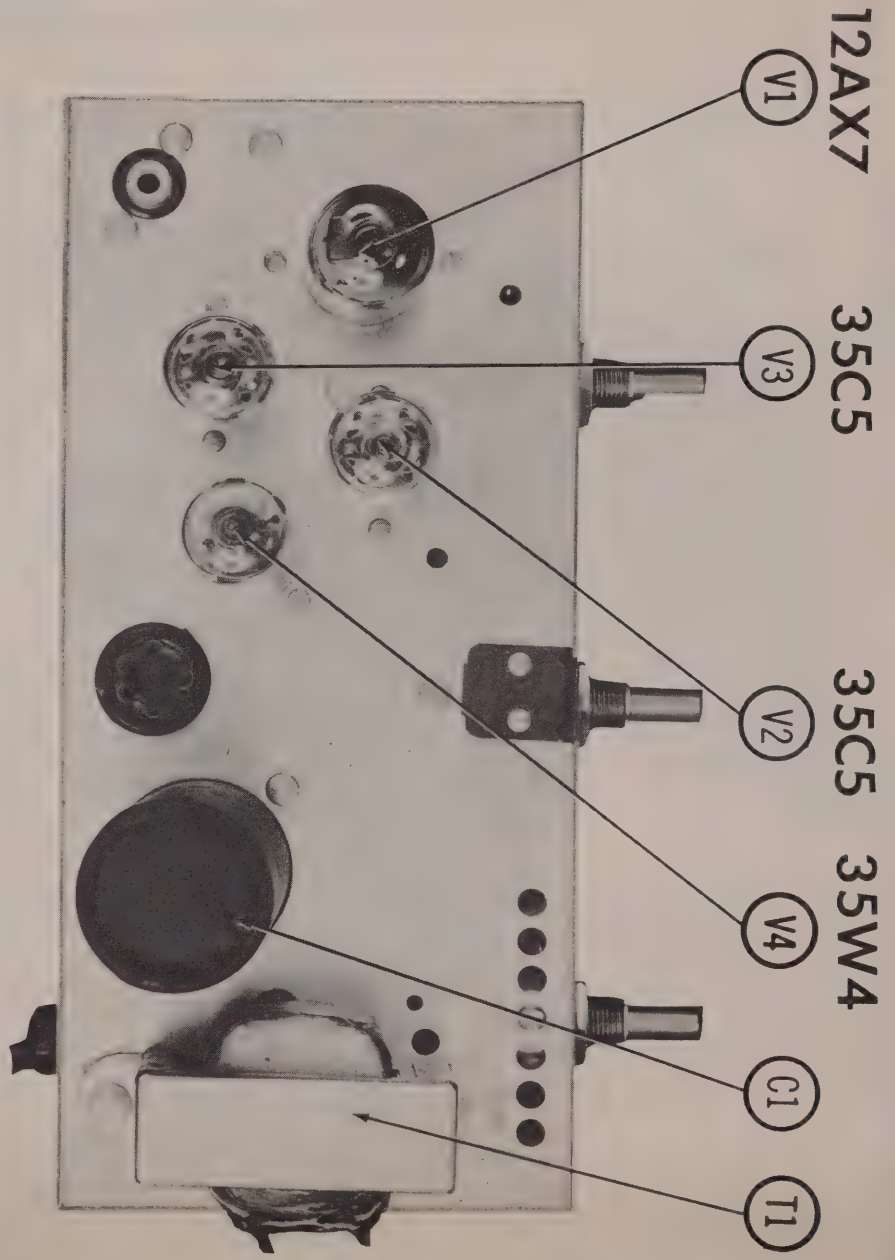
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	MAGNAVOX PART No.	NOTES
R4	330K		230104-92	
R5	47K		230104-82	
R6	220K		230104-90	
R7	470Ω		230104-58	
R8	68K		230104-84	
R9	12K		230104-75	
R10	220K		230104-90	
R11	470Ω		230104-58	
R12	68K		230104-84	
R13	33K		230104-80	
R14	470K		230104-94	
R15	100Ω	1	230105-50	
R16	470K		230104-94	
R17	6800Ω		230104-72	
R18	33K		230104-80	Note 1
R19	6800Ω		230104-72	
R20	1500Ω		230104-64	
R21	33Ω		230104-44	

Note 1. Some versions may use 3300Ω (Part #230104-68) in this application.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	MAGNAVOX PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	3750Ω CT	3-4Ω	320265-1							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MAGNAVOX PART No.	QUAM PART No.	
SP1	8"	PM	3-4Ω	583818	8A31	
SP2	4"	PM	3-4Ω	583779-1	4A07	
SP3	5"	PM	3-4Ω	580038-1	5A15TZ3.2	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	MAGNAVOX PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1		55T or 81-TBX	GD	56	PT-1	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

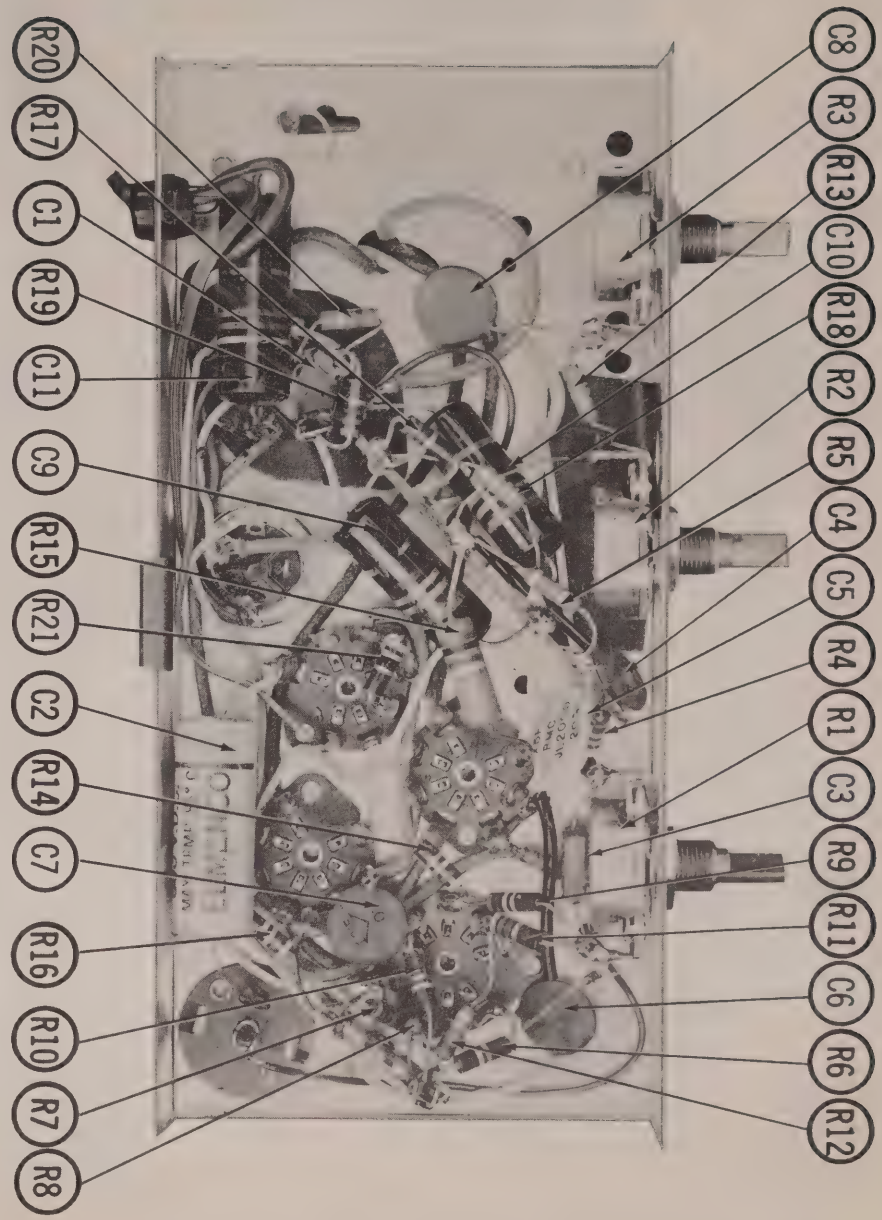
(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

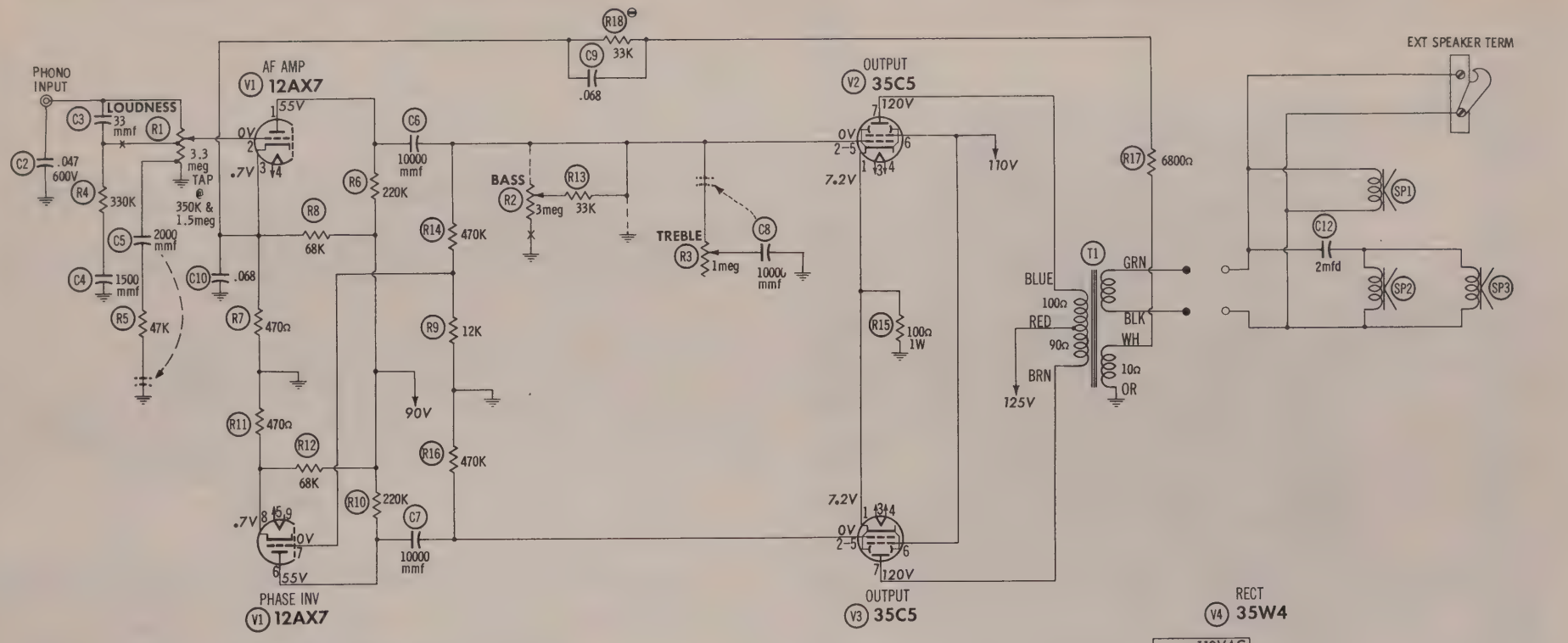
ITEM No.	REPLACEMENT DATA			REMARKS
	MAGNAVOX PART No.	JENSEN PART No.	WALCO PART No.	
M2		* JP-35 or † JPS-35 or †♦ JPS-35SD or ♦ JPS-35D	* W35TPA or † W35TPS or †♦ W35DS or ♦ W35TPD	* Metal † Jewel ♦ Diamond

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 230K	0Ω	470Ω	0Ω	12Ω	† 230K	12K	470Ω	6Ω
V2	35C5	100Ω	33K	12Ω	44Ω	33K	† 1500Ω	† 100Ω		
V3	35C5	100Ω	470K	44Ω	75Ω	470K	† 1500Ω	† 90Ω		
V4	35W4	TP	NC	75Ω	105Ω	135Ω	95Ω	20K(Min)		

† MEASURED FROM PIN 7 OF V4
NC NO CONNECTION
TP TIE POINT

Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

PACEMAKER MODEL 2285

PACEMAKER MODEL 2285

PACEMAKER MODEL 2285

TRADE NAME	Pacemaker Model 2285
MANUFACTURER	Bell Sound Systems, Inc., 555 Marion Road, Columbus 7, Ohio
TYPE SET	AC Operated 3 Channel 10 Watt Audio Amplifier
TUBES (Five)	Types 12AX7/ECC83 Phono Preamp.-AF Amp., 12AX7/ECC83 AF Amp.-Phase Inv., (2) 6V6GT Output, 6X5GT Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .62 Amp. @ 117 Volts AC (58 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

H360

SET 399 FOLDER 9

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	Phono Preamplifier-Tuner Preamplifier	12AX7/ECC83
V2	AF Amp. - Phase Inv.	12AX7/ECC83
V3	Output	6V6GT
V4	Output	6V6GT
V5	Rectifier	6X5GT

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BELL SOUND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	400			C1070			T-550	R2565 *
B	20	400						MTD-4520	
C	25	25							
C2	10	400		PRS450V10	BR1045	TC72	TD-10-450	MT-4510	TVA-1705

* Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA BELL SOUND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C4	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C5	.015	400								10%
C6	68			NPO-DI 68	TCZ-68	C10Q68C	TCO-68		5TCC-Q68	NPO 10% ①
C7	1000					1R5D1	ED-1000	MCB255	MS-21	10%
C8	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C9	.05	400		P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C10	240					L10T24	ED-240		MS-324	10%
C11	10			NPO-DI 10	DD-100	L10Q1	ED-10	ZT-541	MS-41	10%
C12	3000					1R5D3	CY20C302J	MCB461	MS-23	10%
C13	3000					1R5D3	CY20C302J	MCB461	MS-23	10%
C14	68			NPO-DI 68	TCZ-68	C10Q68C	TCO-68		5TCC-Q68	NPO 10%
C15	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C16	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

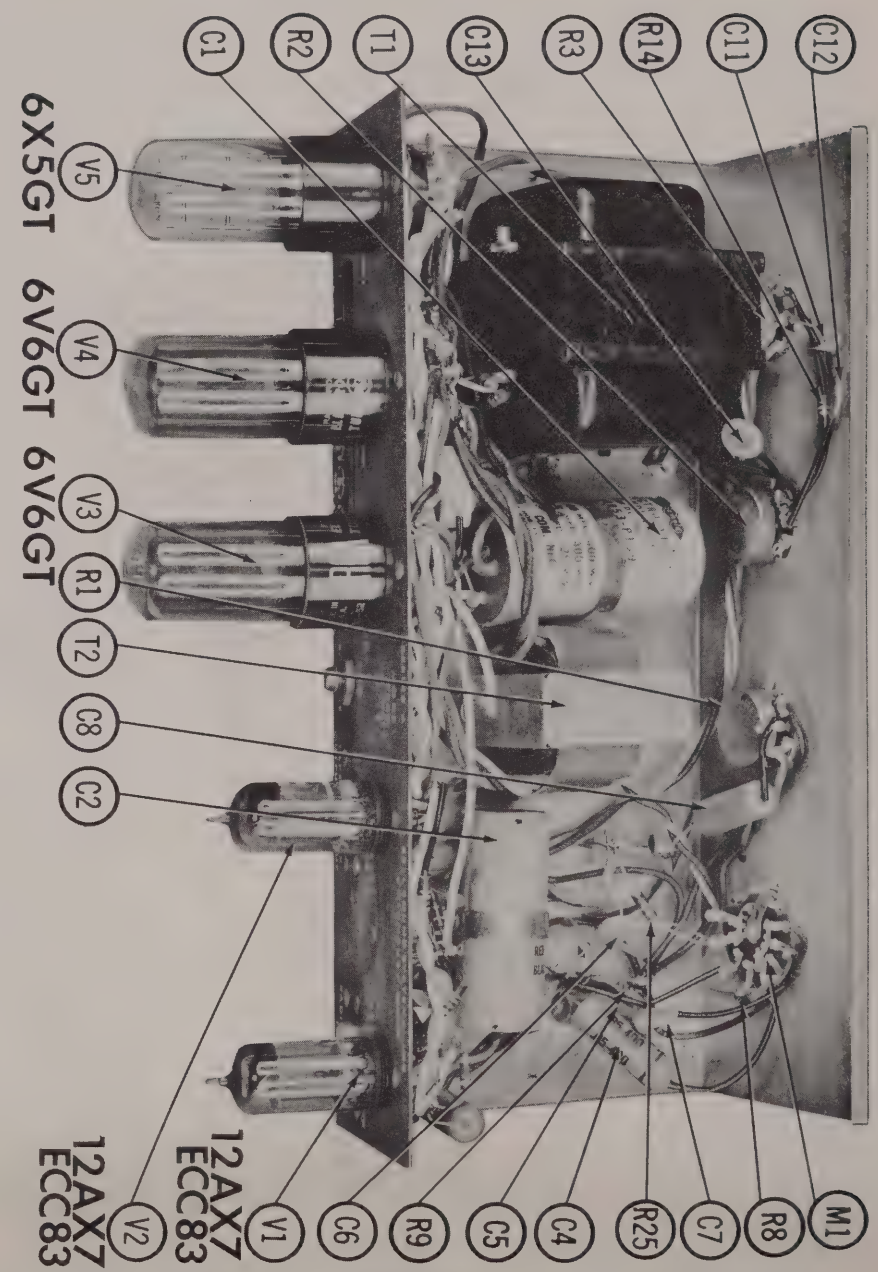
① Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA BELL SOUND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½	B20066-P152	B-60	A47-500K-Z	Q13-133	U48	Gain
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	2meg	½	B20066-P151	B-76	A47-2meg-Z	Q13-139	U55	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	2meg	½	B20066-P150	B-76	A47-2meg-Z	Q13-139	U55	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1 or KR-1*	SWE-12	76-1	US-26	
R4A	100Ω	2	B-20066P141	WN-101	A43-100	WPK-100	R100L	Hum Balance (Wire Wound)
B	Shaft				FKS-1/4	Not Req.	Not Req.	

* Use KR on CRL "red label" controls, KB on "blue label" controls.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	BELL SOUND PART No.	NOTES
R5	4.7meg			
R6	47K			
R7	470K			
R8	100K			
R9	18K			
R10	4.7meg			
R11	470K			
R12	180K			
R13	470K			
R14	68K			
R15	1.3meg 5%			
R16	5600Ω			
R17	270K			
R18	470K			
R19	470K			
R20	470K			
R21	250Ω	5		
R22	430K 5%			
R23	2200Ω	1		
R24	470K			
R25	1meg			Note 1

Note 1. Some versions use 1.5meg in this application.

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA BELL SOUND PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ② .62A	640VCT ② .080A	6.3V ② 2.1A	B-20326						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA BELL SOUND PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5900Ω CT	16Ω Tap ② 8Ω, 4Ω	B-20344	Z1402					S-24A ①	① Tape 500Ω Tap and drill new mounting holes.

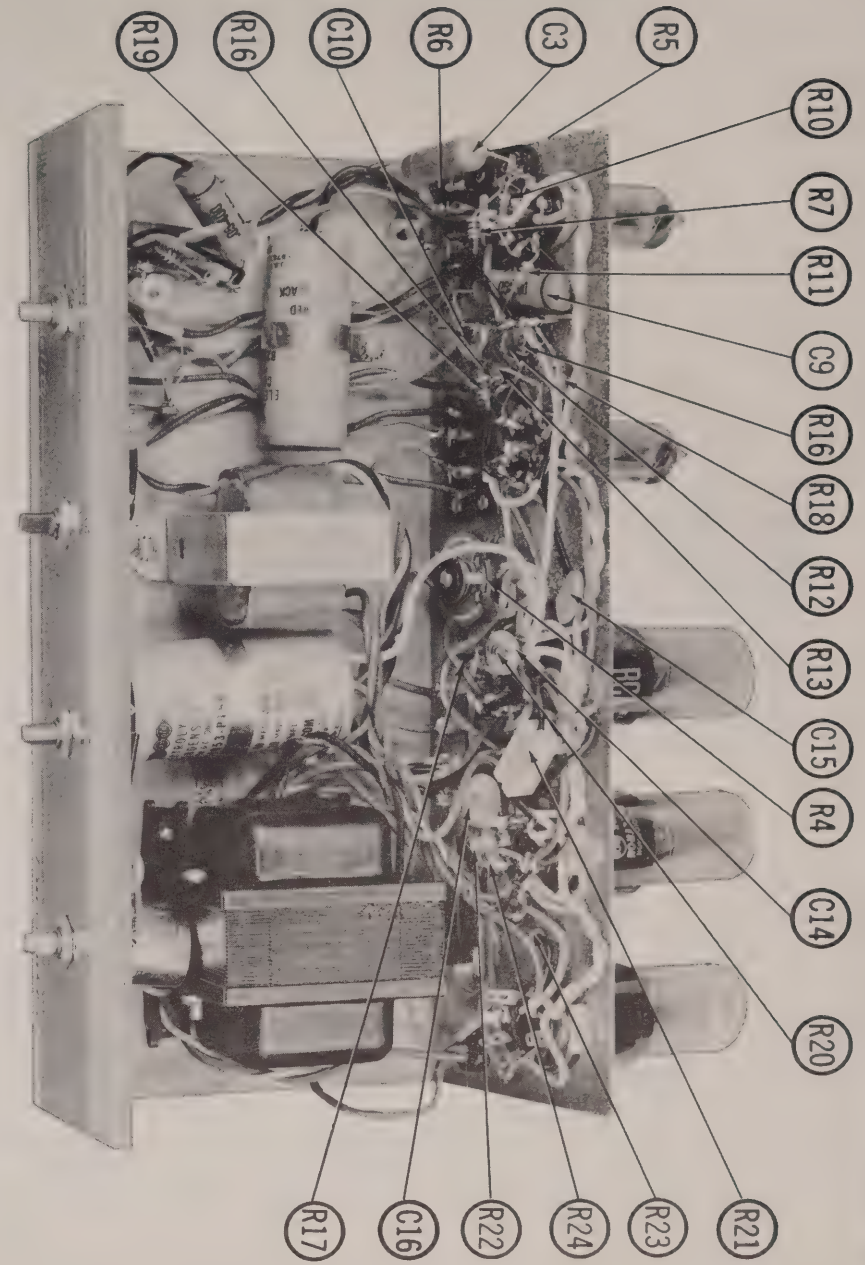
MISCELLANEOUS

ITEM No.	PART NAME	BELL SOUND PART No.	NOTES
M1	Switch		Selector (Rotary, Wafer Type)

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW

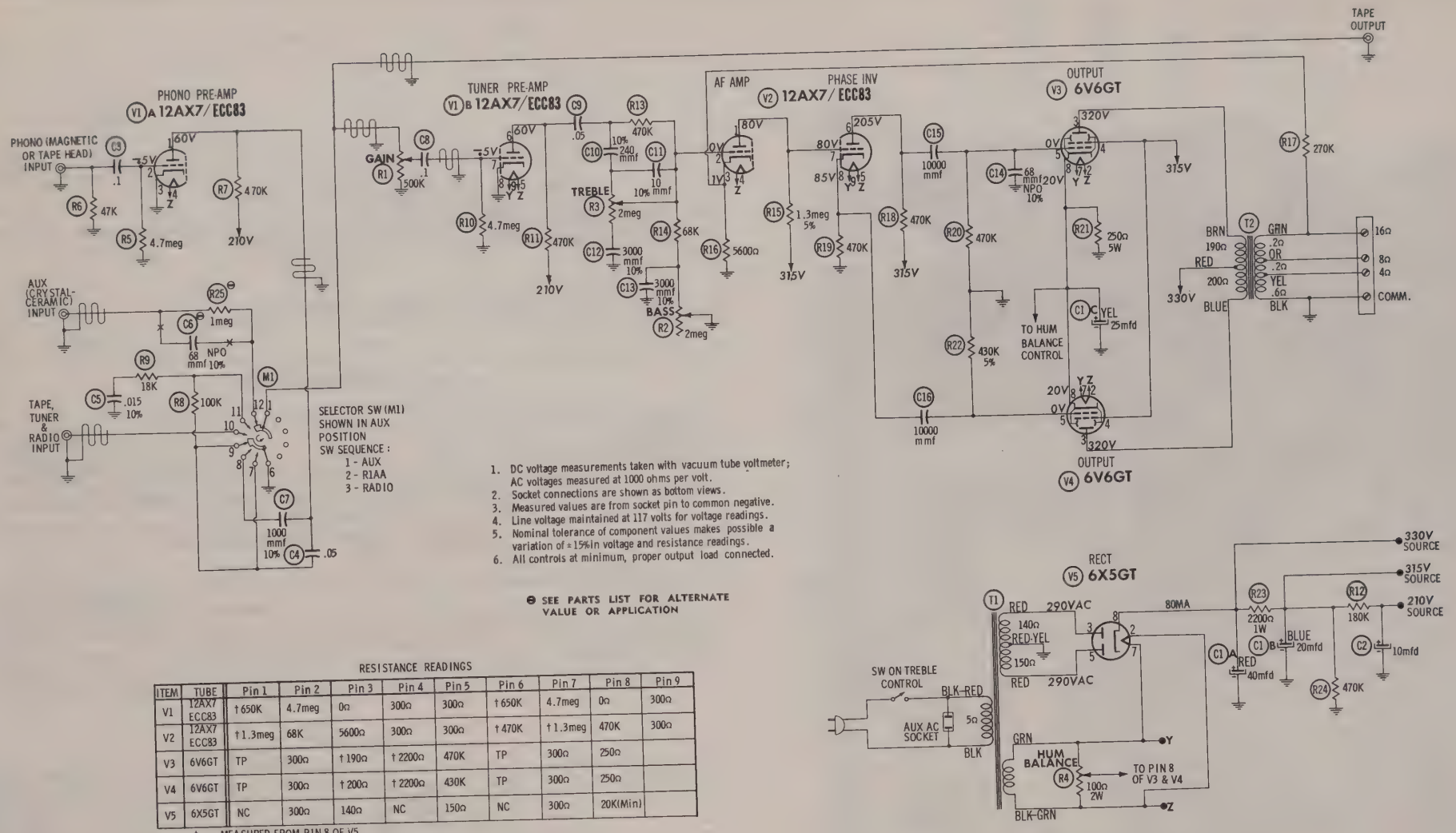


PACEMAKER MODEL 2285

SET 399 FOLDER 9

FOLDER 9

PACEMAKER MODEL 2285



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

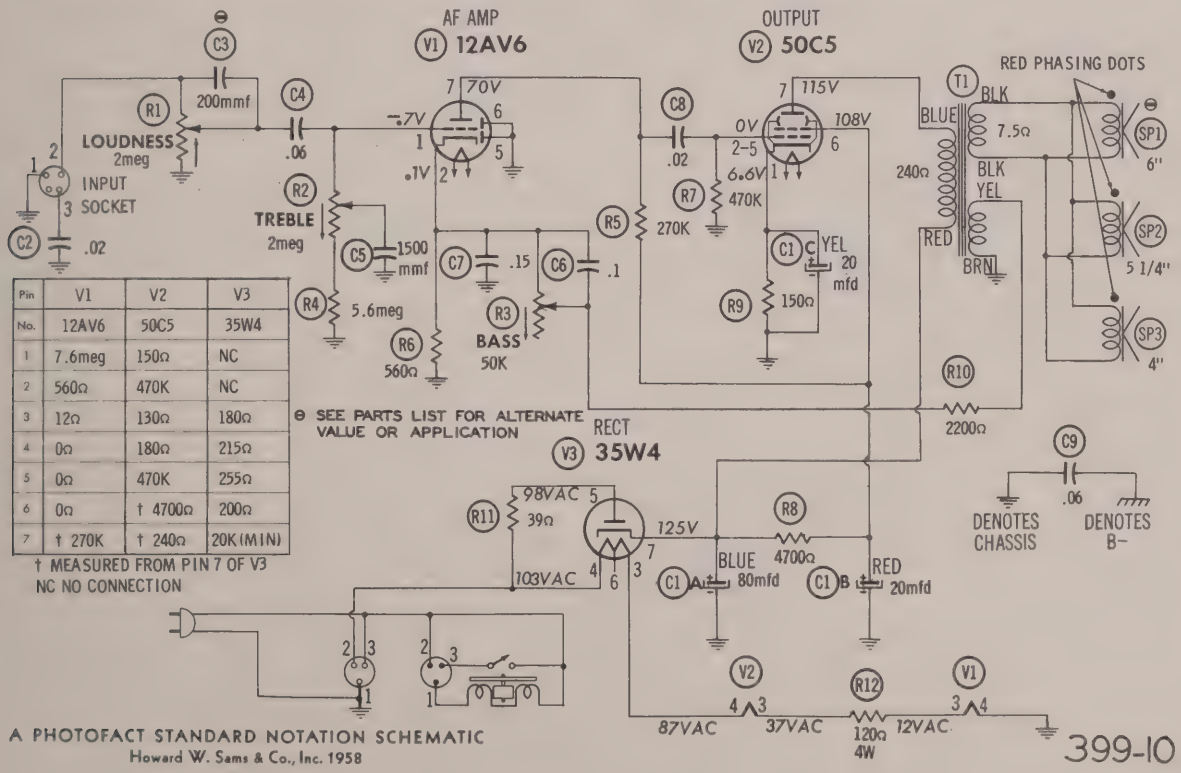
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7 ECC83	†650K	4.7meg	0Ω	300Ω	300Ω	†650K	4.7meg	0Ω	300Ω
V2	12AX7 ECC83	†1.3meg	68K	5600Ω	300Ω	300Ω	†470K	†1.3meg	470K	300Ω
V3	6V6GT	TP	300Ω	†190Ω	†2200Ω	470K	TP	300Ω	250Ω	
V4	6V6GT	TP	300Ω	†200Ω	†2200Ω	430K	TP	300Ω	250Ω	
V5	6X5GT	NC	300Ω	140Ω	NC	150Ω	NC	300Ω	20K(Min)	

† MEASURED FROM PIN 8 OF V5
NC NO CONNECTION
TP TIE POINT

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

TRADE NAME	Phonola Model 1057, 1057W
MANUFACTURER	Waters Conley Co., Inc., Rochester, Minn.
TYPE SET	AC Operated Audio Amplifier with 4 Speed Automatic Record Changer
TUBES (Three)	Types 12AV6 AF Amplifier, 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycle RATING .25 Amp. @117 Volts AC (25 Watts)

FOR SERVICE INFORMATION ON RECORD CHANGER-SEE SIMILAR V-M MODEL 1200A- PHOTOFACT SET 353 FOLDER 16



Pin No.	V1 12AV6	V2 50C5	V3 35W4
1	7.6meg	150Ω	NC
2	560Ω	470K	NC
3	12Ω	130Ω	180Ω
4	0Ω	180Ω	215Ω
5	0Ω	470K	255Ω
6	0Ω	† 4700Ω	200Ω
7	† 270K	† 240Ω	20K(MIN)

† MEASURED FROM PIN 7 OF V3
NC NO CONNECTION

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

399-10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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H406

PHONOLA MODELS
1057, 1057W

PHONOLA MODELS
1057, 1057W

SET 399 FOLDER 10

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AV6	
V2	Output	50C5	
V3	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA PHONOLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	12145	AFH3-82	C0610	FP311.1	TMT-67	T-295 MT-1520	TVL-3431.5
B	20	150							
C	20	25							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA PHONOLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.02	200		P288N-02	DD-203	CUB4S2	ED-02	GEM-412	2TM-S2	
C3	200			BPD-0002	DD-201	L10T2	ED-200	UC-532	5GA-T2	①
C4	.06	200		P288N-06		CUB6S6		GEM-416	6TM-S6	
C5	1500			BPD-0015	DD-152	BYA10D15	ED-1500	DC5215	5HK-D15	
C6	.1	200		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C7	.15	200		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C8	.02	200		P288N-02	DD-203	CUB4S2	ED-02	GEM-412	2TM-S2	
C9	.06	200		P288N-06		CUB6S6		GEM-416	6TM-S6	

① Some versions many use 100mmf in this application

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA PHONOLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	2meg	½	12400					Loudness
R2	2meg	½	12400					Treble
R3	50K	½	12401					Bass

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	PHONOLA PART No.	NOTES
R4	5.6meg			
R5	270K			
R6	560Ω			
R7	470K			
R8	4700Ω			
R9	150Ω			
R10	2200Ω			
R11	39Ω			
R12	120Ω	4		

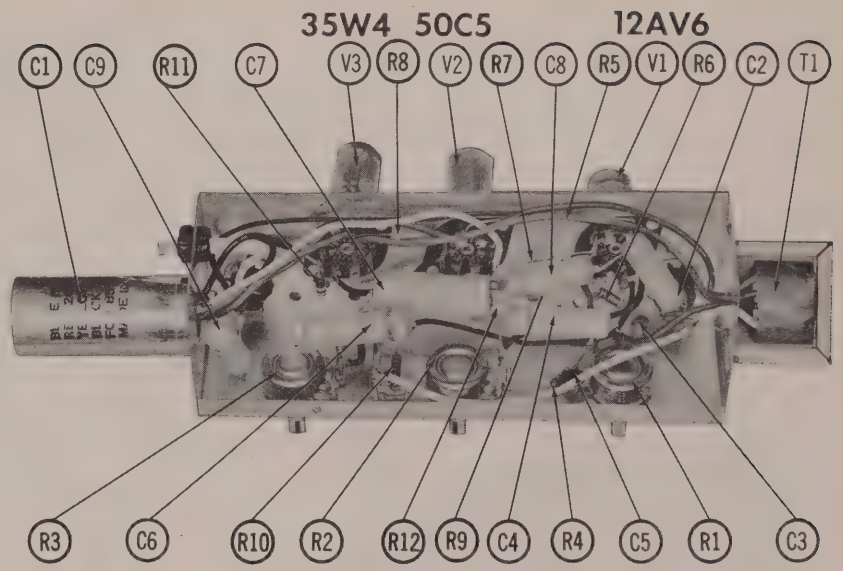
TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.1	REPLACEMENT DATA PHONOLA PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2100Ω	3-4 Ω	12523							
	TURNS RATIO PRI.	SEC. 2								
	8:	1								

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA PHONOLA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	6"	PM	6-8Ω	12533①	6A31Z6	①Alternate Part #11505
SP2	5 1/4"	PM	3-4Ω	10901	52A1	
SP3	4"	PM	3-4Ω	11792	4A07	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA PHONOLA PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	60-41	81-TBX		56	PT-2	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA PHONOLA PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2	61-42	† S-66 or †♦ S-66SD or ♦ S-66D	† W75TPS or †♦ W74DS or ♦ W75TPD	† Jewel ♦ Diamond

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	12126-3E	Bass, Treble, Loudness
Cabinet	12529	
Handle	11843	

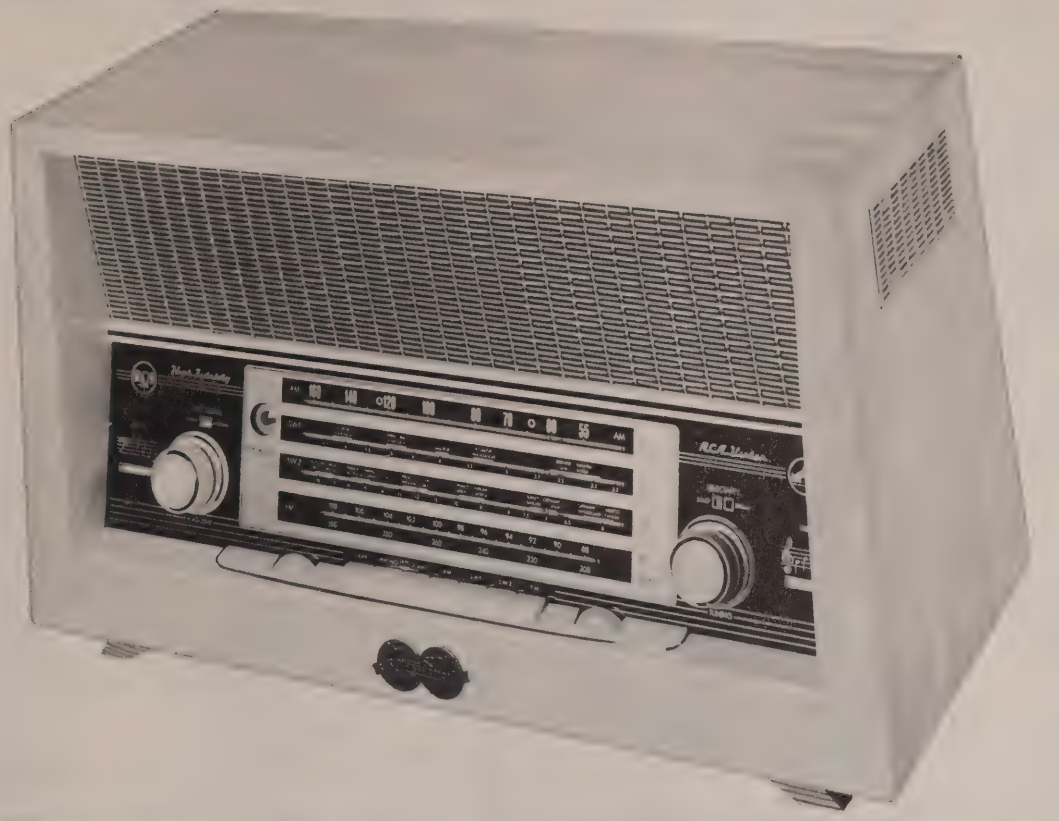
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

RCA VICTOR MODELS 9INT1, 9INT2 (Ch. RC-1172)

RCA VICTOR MODELS
9INT1, 9INT2 (Ch. RC-1172)



RCA VICTOR MODELS
9INT1, 9INT2 (Ch. RC-1172)

TRADE NAME	RCA Victor Models 9-INT-1, 9-INT-2 (Ch. RC-1172)		
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corporation of America, Camden 8, N. J.		
TYPE SET	AC Operated FM-BC-SW Receiver (Model 9-INT-2 Has 4 Speed Automatic Record Changer)		
TUBES (Seven)	Types 12AT7 FM RF Amp.-FM Conv., 6AJ8/ECH81 1st FM IF Amp.-AM Mixer-AM Osc., 6DA6/EF89 2nd FM-1st AM IF Amp., 6DA6/EF89 3rd FM-2nd AM IF Amp., 6AK8/EABC80 Ratio Det.-AM Det.-AVC-AF Amp., 6CD7/EM34 Tuning Indicator, 6BQ5/EL84 Output		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.53 Amp. @ 117 Volts AC (55 Watts)
TUNING RANGES	BROADCAST 510-1650KC FREQ.MOD. 88-108MC	SHORT WAVE I SHORT WAVE II	2.2-7MC 5.8-18.5MC

FOR SERVICE INFORMATION ON RECORD CHANGER—SEE RCA RP-205 SERIES—PHOTOFACT SET 358 FOLDER 10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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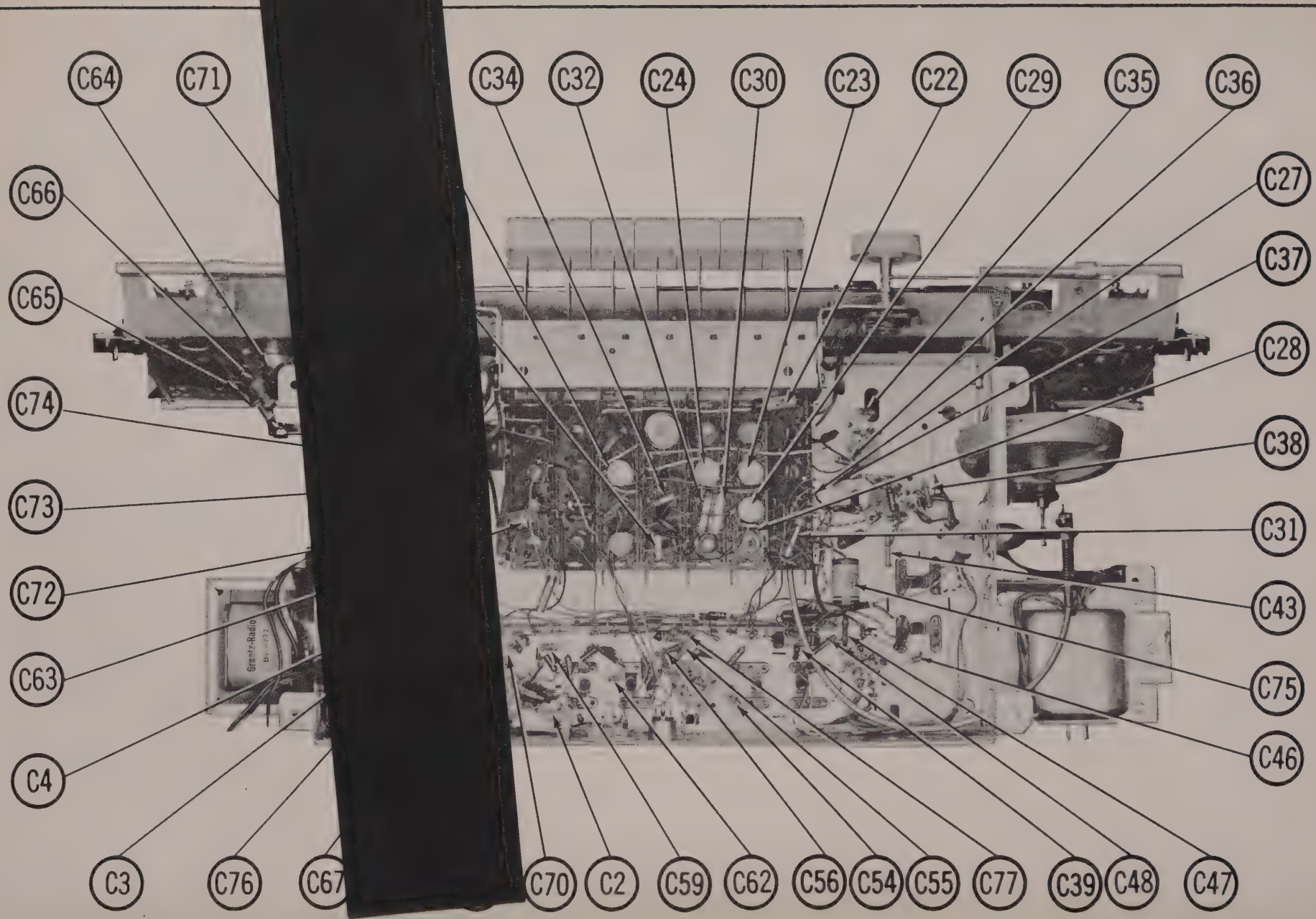
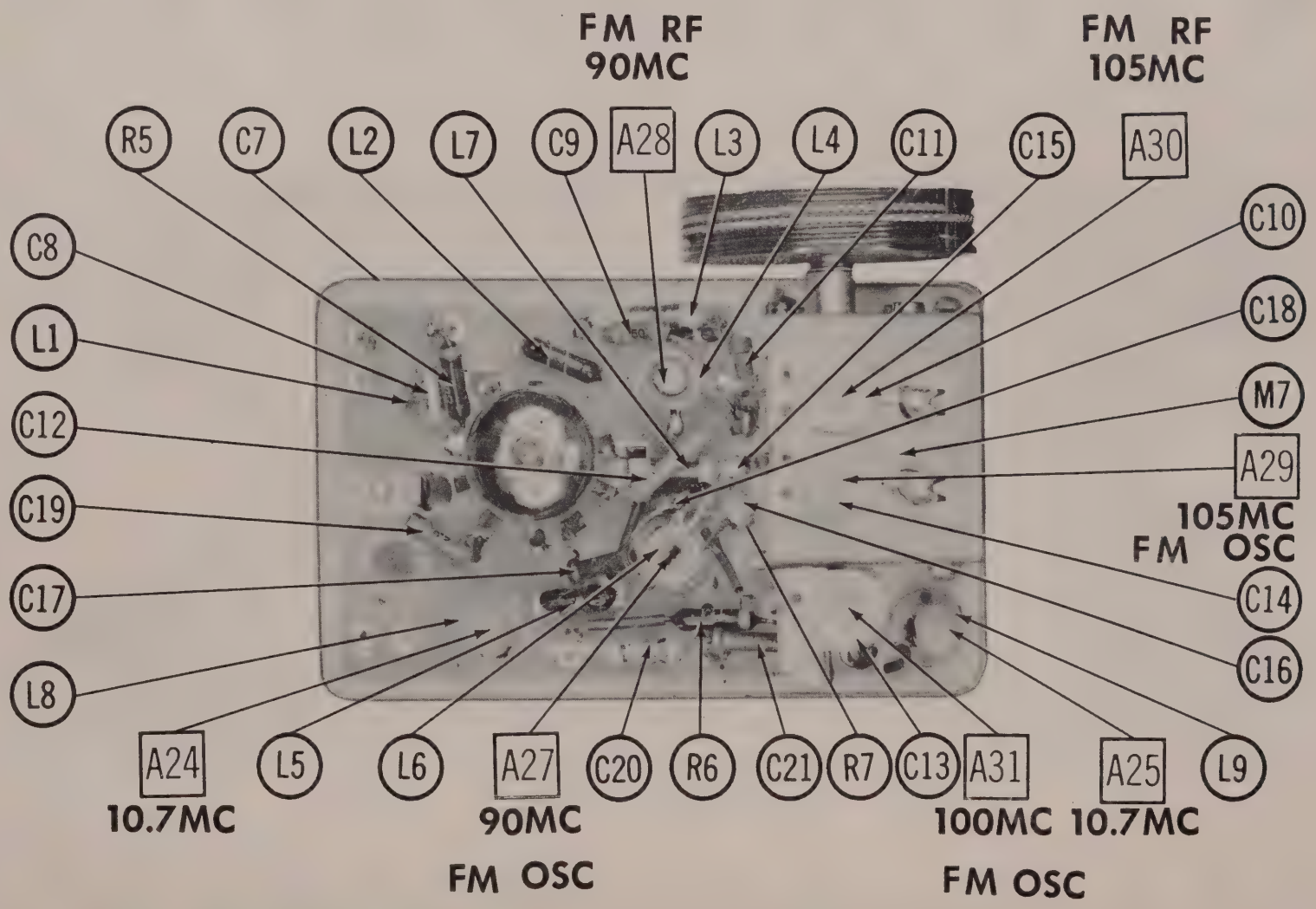


CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION

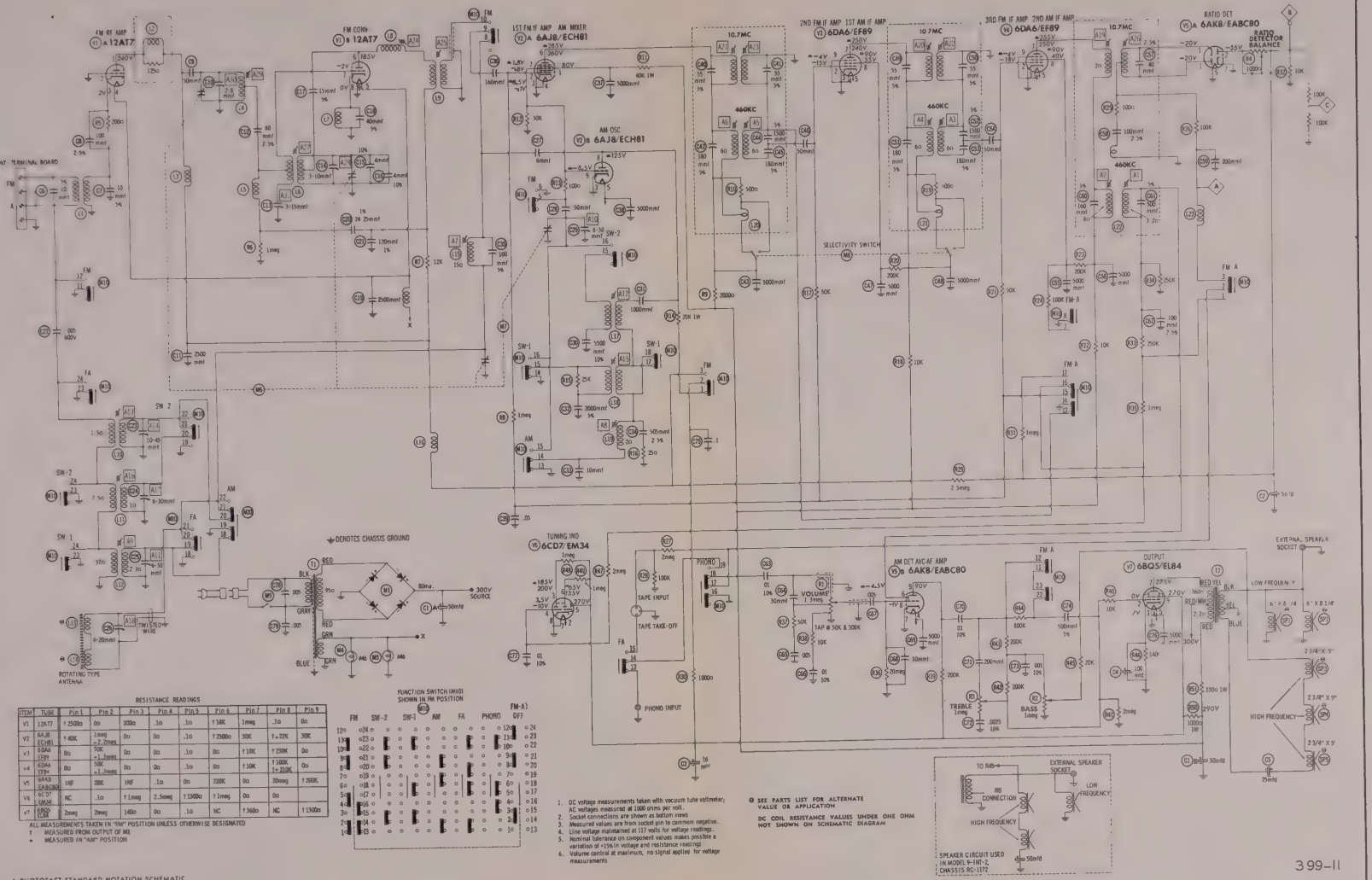
CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION

RCA VICTOR
MODEL 9-INT-1 (CH. RC-1172)

FOLDER 11



CHASSIS TOP VIEW - FM RF SUB CHASSIS



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	↑ 250Ω	0Ω	200Ω	.1Ω	.1Ω	↑ 14K	1meg	.1Ω	0Ω
V2	6AJ8 ECH81	↑ 40K	1meg + 2.2meg	0Ω	0Ω	.1Ω	↑ 250Ω	30K	↑ 22K	30K
V3	6DA6 EF89	0Ω	50K + 1.1meg	0Ω	0Ω	.1Ω	0Ω	↑ 10K	↑ 230K	0Ω
V4	6DA6 EF89	0Ω	50K + 1.2meg	0Ω	0Ω	.1Ω	0Ω	↑ 10K	↑ 160K + 220K	0Ω
V5	6AK8 EABC80	1MF	18K	1MF	.1Ω	0Ω	220K	0Ω	20meg	↑ 200K
V6	6CD7 EM34	NC	.1Ω	↑ 1meg	2.5meg	↑ 1300Ω	↑ 1meg	0Ω	0Ω	
V7	6BQ5 EL84	2meg	2meg	140Ω	0Ω	.1Ω	NC	↑ 360Ω	NC	↑ 1300Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM OUTPUT OF M6
• MEASURED IN "AM" POSITION

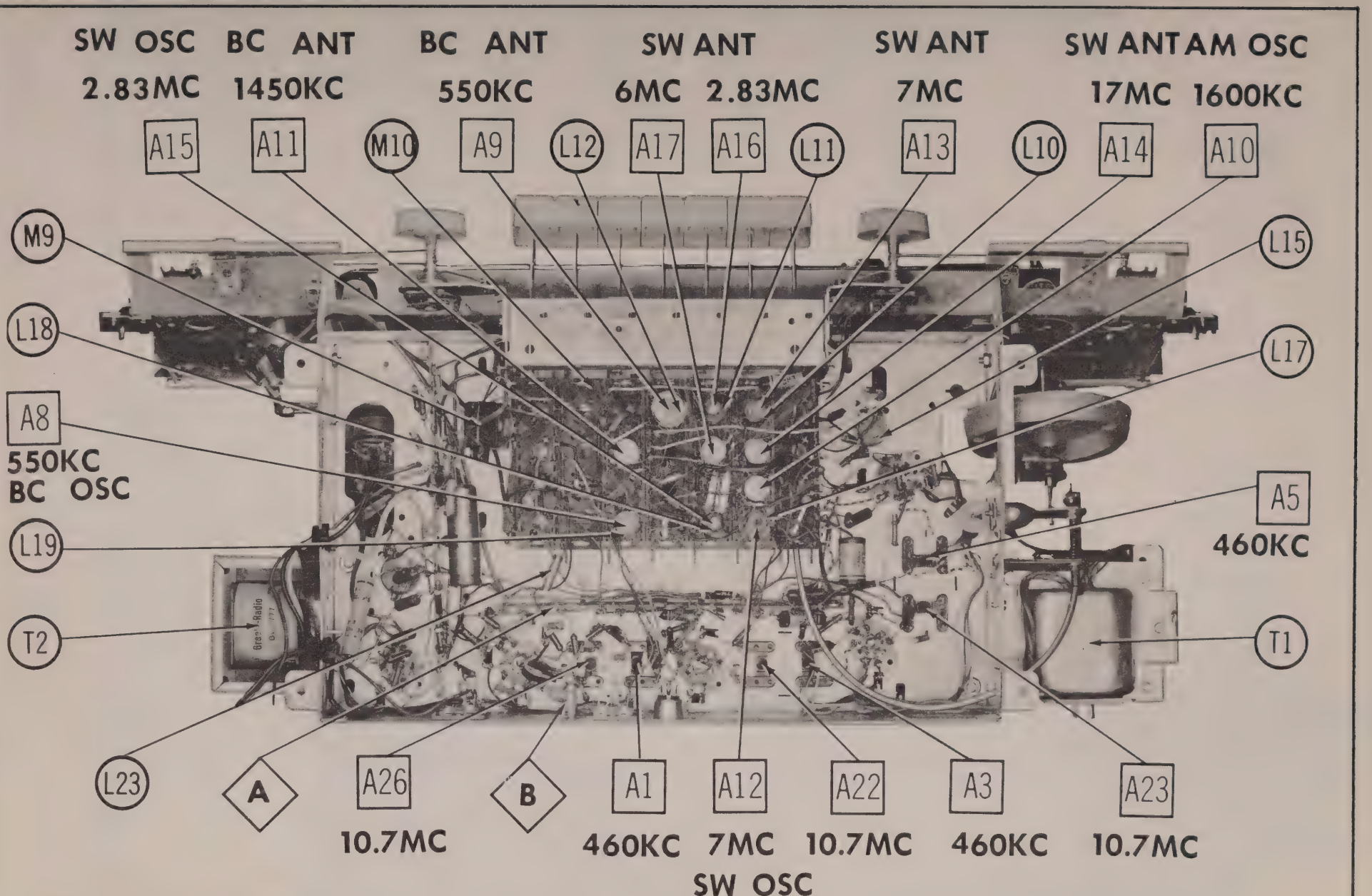
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applies for voltage measurements

⊛ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

399-11

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958



CHASSIS BOTTOM VIEW - ALIGNMENT, INDUCTOR & MISCELLANEOUS IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.005mfd	High side to pin 2 (grid) of 6AJ8 (V2). Low side to chassis.	460KC (400∿ Mod)	AM Sharp	AM tuning gang fully open	Across voice coil	A1, A2, A3, A4, A5, A6	Adjust for maximum output. Detune primary before adjusting secondary.
2.	200mmf	High side to AM ant. term. Low side to chassis.	460KC	AM	550KC	"	A7	Adjust for MINIMUM output.
3.	"	"	550KC	"	"	"	A8, A9	Adjust for maximum output.
4.	"	"	1600KC	"	1600KC	"	A10	"
5.	"	"	1450KC	"	1450KC	"	A11	"
6.	300Ω	"	7MC	SW II	7MC	"	A12, A13	"
7.	"	"	17MC	"	17MC	"	A14	"
8.	"	"	2.83MC	SW I	2.83MC	"	A15, A16	"
9.	"	"	6MC	"	6MC	"	A17	"
10.		Loop	1450KC	AM/FA	1450KC	"	A18	"

FM OSCILLATOR RADIATION
A31 need not be adjusted unless extensive repairs have been made to the FM section. Perform the adjustment before and after the FM alignment. Connect a grid-dip meter or RF-VTVM across the FM antenna terminals. With the receiver operating in FM, adjust A31 for MINIMUM meter reading.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓑ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
11.	.01mfd	High side to RF stator of FM tuning gang. Low side to chassis.	10.7MC (Unmod)	FM	FM tuning gang fully open	AC probe to ext. speaker jack. Common to chassis	A19, A20, A21, A22, A23	Detune A26, A22, A23. Adjust for maximum output.
12.	"	"	"	"	"	"	A24, A25	Detune A25. Adjust A24 for maximum output. Adjust A25 for maximum output.
13.	"	"	"	"	"	DC probe to point Ⓐ. Common to point Ⓒ.	A26	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
14.	"	"	"	"	"	AC probe to ext. speaker jack. Common to chassis	R4	Adjust for MINIMUM output. Repeat steps 13 & 14 until interacting effect is eliminated.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
11.	.01mfd	High side to RF stator of FM tuning gang. Low side to chassis.	10.7MC	FM	FM tuning gang fully open.	Vert. Amp. to point Ⓑ. Low side to chassis.	A19, A20, A21, A22 A23, A24 A25	Disconnect stabilizing Capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
12.	"	"	"	"	"	Vert. Amp. to point Ⓐ. Low side to point Ⓒ.	A26	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A19 for maximum amplitude and straightness of crossover lines.
13.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	R4	Disconnect C2. Adjust for MINIMUM reading. Repeat steps 12 and 13 until interacting effect is eliminated. Reconnect C2.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
15.	270Ω Carbon Resistor	Across FM antenna terminals with 270Ω in high side.	90MC (Unmod)	FM	90MC	DC probe to point Ⓑ. Common to chassis.	A27, A28	Adjust for maximum deflection.
16.	"	"	105MC	"	105MC	"	A29, A30	"

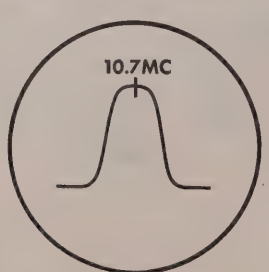


FIG. 1

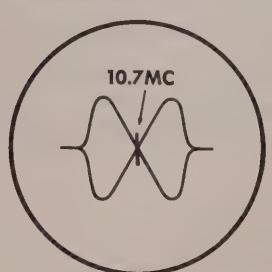
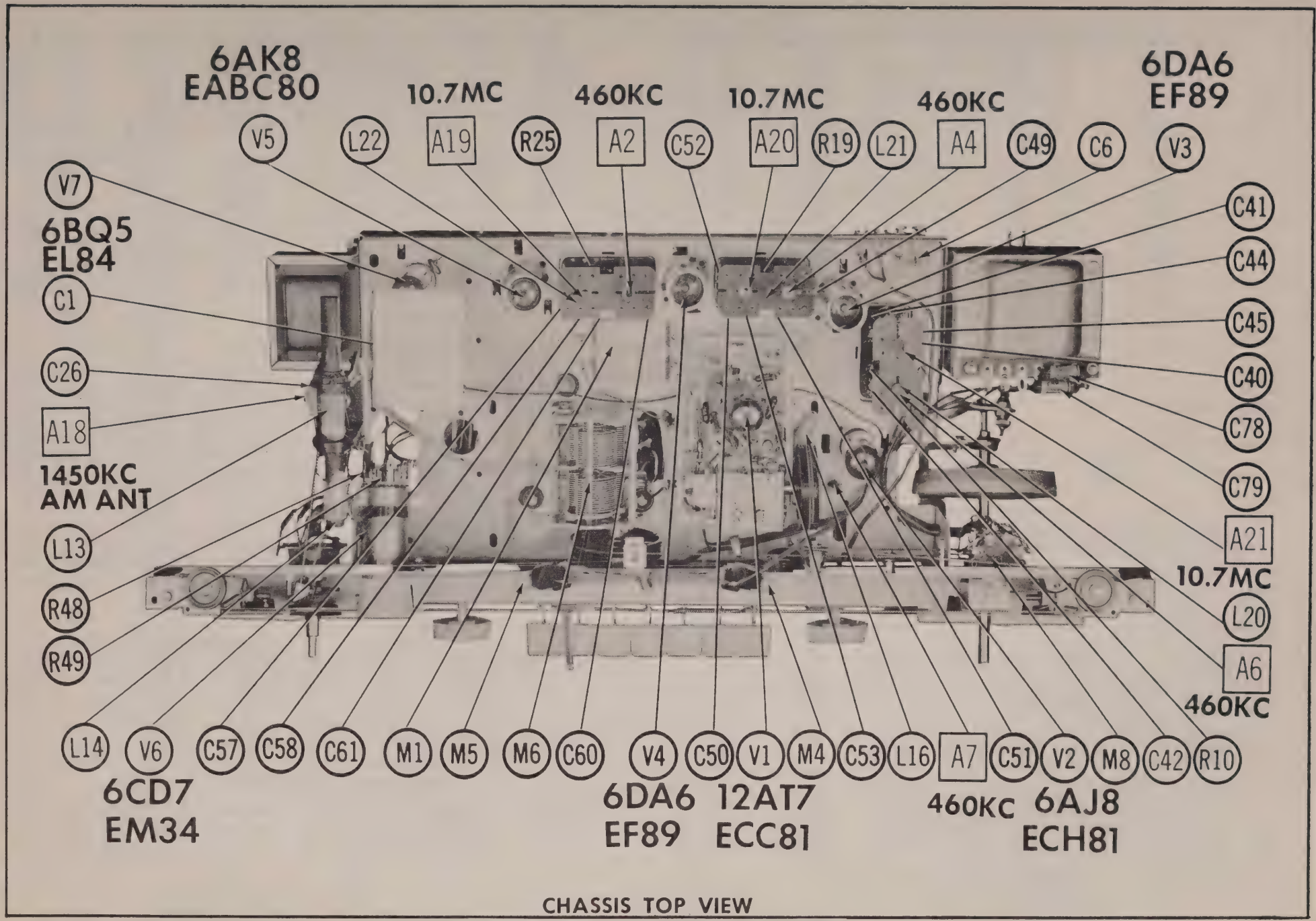


FIG. 2



CHASSIS TOP VIEW

RCA VICTOR
MODEL 9-INT-1 (CH. RC-1172)

FOLDER 11

PARTS LIST AND DESCRIPTIONS
TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	12AT7
V2	1st FM IF Amp. - AM Mixer-AM Oscillator	6AJ8/ECH81
V3	2nd FM IF Amp. - 1st AM IF Amplifier	6DA6/EF89
V4	3rd FM IF Amp. - 2nd AM IF Amplifier	6DA6/EF89
V5	Ratio Det. - AM Det. - AVC - AF Amplifier	6AK8/EABC80
V6	Tuning Indicator	6CD7/EM34
V7	Output	6BQ5/EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385	104784		XB0455	FP240		D-190	R2582 *
B	50	385							
C2	5	80	104780	PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1403
C3	16	385	104783	PRS450V16	BR1645	TC74	TD-16-450	MT-4516	TVA-1708
C4	100	18	104782	PRS25V100	BBR100-25	TC2501	TD-100-25	MTH-2510	TVA-1207
C5	25	35	104781	PRS50V25①	BBR25-50 ①	TC36 ①	TD-25-50①	MT-0525 ①	TVA-1306 ①

① Connect 2 in parallel for Model 9-INT-2. * Non Catalog Item

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	10		104763		TCZ-10	22R5Q1	TCO-10		MS-41	5%
C7	10		104763		TCZ-10	22R5Q1	TCO-10		MS-41	5%
C8	100		104748		TCZ-100			MCE235		2.5%
C9	50		104768	SI 50	D6-500	LT6Q5	GP-50	UC-545	5GA-Q5	
C10	2-8		104774							
C11	2500		104772	SI 2500	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C12	60		104770							2.5%
C13	3-15		104776							
C14	3-10		104775							
C15	4		104760							10%
C16	4		104761							10%
C17	15		104764		TCZ-15	22R5Q15	TCO-15		MS-415	5%
C18	40		104766			22R5Q4		MCB223	MS-44	5%
C19	2500		104772	SI 2500	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C20	24.25		104765							±.25mmf
C21	120		104771							1%
C22	.005	600	73920	P688N-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C23	10-45		104778							
C24	6-30		104779							
C25	6-30		104779							
C26	4-20		104777							
C27	.6		104762							±.45mmf
C28	50		104746	1468-00005	D6-500	5W5Q5	ED-50	MC225	1FM-45	
C29	6-30		104779							
C30	5500		104759							10%
C31	1000		104756	1467-001	D6-102	1W5D1	ED-1000	MC255	1FM-21	
C32	2000		104759	1464-002		1R5D2	CY20C202J	MCE457	MS-22	5%
C33	10		104763	SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C34	505		104755							2.5%
C35	100		104749	1469-0001	TCZ-100	22R5T1	CY10C101J	MCE235	MS-31	5%
C36	160		104750	1468-00016		5W5T16	CY10C161J		1FM-316	
C37	5000		104773	BPD-005	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C38	5000		104773	BPD-005	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C39	.05	400	73553	P488N-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C40	55		104769							5%
C41	55		104769							5%
C42	180		104752	1469-00018	TCZ-180	22R5Q18	CY10C181J		MS-318	5%
C43	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C44	1500		104757	1464-0015		1R5D15	CY20C152J		MS-215	5%
C45	180		104752	1469-00018	D6-180	22R5T18	CY10C181J		MS-318	5%
C46	50		104746	1468-00005	D6-500	5W5Q5	ED-50	MC225	1FM-45	
C47	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C48	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C49	55		104769							5%

PARTS LIST AND DESCRIPTIONS (Continued)
CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C50	55		104769							5%
C51	180		104752	1469-00018	TCZ-180	22R5T18	CY10C181J		MS-318	5%
C52	1500		104757	1464-0015		1R5D15	CY20C152J		MS-215	5%
C53	180		104752	1469-00018	TCZ-180	22R5T18	CY10C181J		MS-318	5%
C54	50		104746	1468-00005	D6-500	5W5Q5	ED-50	MC225	1FM-45	
C55	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C56	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C57	40		104767					MCE223		2.5%
C58	100		104747			TCZ-100		MCE235		2.5%
C59	200		104753	1468-0002	D6-201	5W5T2	ED-200	MC237	1FM-32	
C60	160		104751	1469-00016	TCZ-160	22R5T16	CY10C161J		MS-316	5%
C61	500		104754			5R5T5		MCE245	MS-35	5%
C62	100		104748			TCZ-100		MCE235		2.5%
C63	.01	400	73561					GEM-1611		10%
C64	30		104745	1468-00003	DD-300	5W5Q3	ED-30		1FM-43	
C65	.005	600	73920	P688N-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C66	.01	400	73561					GEM-1611		10%
C67	.005	600	73920	P688N-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C68	30		104745	1468-00003	DD-300	5W5Q3	ED-30		1FM-43	
C69	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C70	.01	400	73561					GEM-1611		10%
C71	200		104753	1468-0002	D6-201	5W5T2	ED-200	MC237	1FM-32	
C72	.0025	400	73595					GEM-16225		10%
C73	.001	400	75643							10%
C74	500		104754			5R5T5		MCE245		5%
C75	.1	400	73551	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C76	5000		104773	SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C77	.01	400	73561					GEM-1611		10%
C78	.005	600	73920	P688N-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	
C79	.005	600	73920	P688N-005	D6-502	CUB6D5	GP-5000	GEM-625	6TM-D5	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1.3meg	1/2	104738					Volume, Tap② 50K & 300K
R2	1meg	1/2	104740					Bass
R3	1meg	1/2	104739					Treble
R4	1000Ω	1/4	105091					Ratio Detector Balance

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R5	200Ω		502122	
R6	1meg		502510	
R7	12K		502312	
R8	1meg		502510	
R9	2000Ω		502222	
R10	500Ω		502147	
R11	40K	1	512339	
R12	30K		502333	
R13	100Ω		502110	
R14	20K	1	512318	
R15	25K		502327	
R16	25Ω		502022	
R17	50K		502347	
R18	10K		502310	
R19	500Ω		502147	
R20	200K		502422	
R21	50K		502347	
R22	10K		502310	
R23	200K		502422	
R24	100K		502410	
R25	100Ω		502110	
R26	100K		502410	
R27	2meg		502522	
R28	100K		502410	

ITEM No.	RATING OHMS	RATING WATT	RCA Victor PART No.	NOTES
R29	2.5meg		72788	
R30	1000Ω		502210	
R31	3meg		502333	
R32	30K		502333	
R33	250K		502427	
R34	250K		502427	
R35	1meg		502510	
R36	20meg		502618	
R37	50K		502347	
R38	10K		502310	
R39	200K		502422	
R40	10K		502310	
R41	2meg		502522	
R42	200K		502422	
R43	200K		502422	
R44	800K		502482	
R45	20K		502322	
R46	140Ω		502115	
R47	2meg		502522	
R48	1meg		502510	
R49	1meg		502510	
R50	1000Ω	1	512210	
R51	330Ω	1	512133	

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ② .53A	225V ② .030A	6.7V ② 2.8A	104718						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4800Ω	3-4Ω	104719							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	6" X 8 1/4"	PM	6-8Ω	104741 ①		① Used in Model 9-INT-1
SP2	6" X 8 1/4"	PM	6-8Ω	104741 ①		② Used in Model 9-INT-2
SP3	2 3/4" X 5"	PM	6-8Ω	104743 ①②		
SP4	2 3/4" X 5"	PM	6-8Ω	104743 ①②		
SP5	2 3/4" X 5"	PM	6-8Ω	104743 ①②		
	7" X 10"	PM		104742 ②		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		RCA Victor PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Trans.	104721					
L2	RF Choke						Two turns #30 wire wound on 125Ω Resistor
L3	RF Choke	104723					
L4	FM RF Coil	104722					
L5	RF Choke	104723					
L6	FM Osc. Coil	104724					
L7	RF Choke	104723					
L8	FM IF Coil	104956					
L9	1st FM IF	104957					
L10	SW Ant. Coil	104726					
L11	SW Ant. Coil	104728					
L12	AM Ant. Trans.	104730					
L13	Ant. Coil	104731					Note 1
L14	Ant. Coil	104732					Note 1
L15	IF Trap	104735					
L16	RF Choke	104725					
L17	SW Osc. Coil	104727					
L18	SW Osc. Coil	104729					
L19	AM Osc. Coil	104733					
L20	2nd FM IF 1st AM IF	104716					
L21	3rd FM IF 2nd AM IF	104716					
L22	Ratio Det. 3rd AM IF	104717					
L23	RF Choke	104734					

Note 1. Part of complete Loop Stick assembly (Part #104785).

PARTS LIST AND DESCRIPTIONS (Continued)

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.08A	104714		60-9150 ①	D-56 ②	① Two required ② Silicon type

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	100653	55-T or 81-TB	GD-J	56	PT-2	

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	
M3	78827	† S-66 or †♦ S-66SD or ♦ S-66D	† W75TPS or †♦ W75DS or ♦ W75TPD	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M4	Dial Lamp	5228	#46
M5	Dial Lamp	5226	#46
M6	Tuning Capacitor	104736	AM 2 Gang (Ant. 12-555mmf, Osc. 12-555mmf)
M7	Tuning Capacitor	104737	FM 2 Gang
M8	Switch	104707	Selectivity (Toggle Type)
M9	Switch	104744	Power, On-Off (Toggle Type)
M10	Switch	104715	Function, Complete with Coils
	Dial	105093	AM Antenna Control
	AM Dial Pointer	104677	
	FM Dial Pointer	104678	

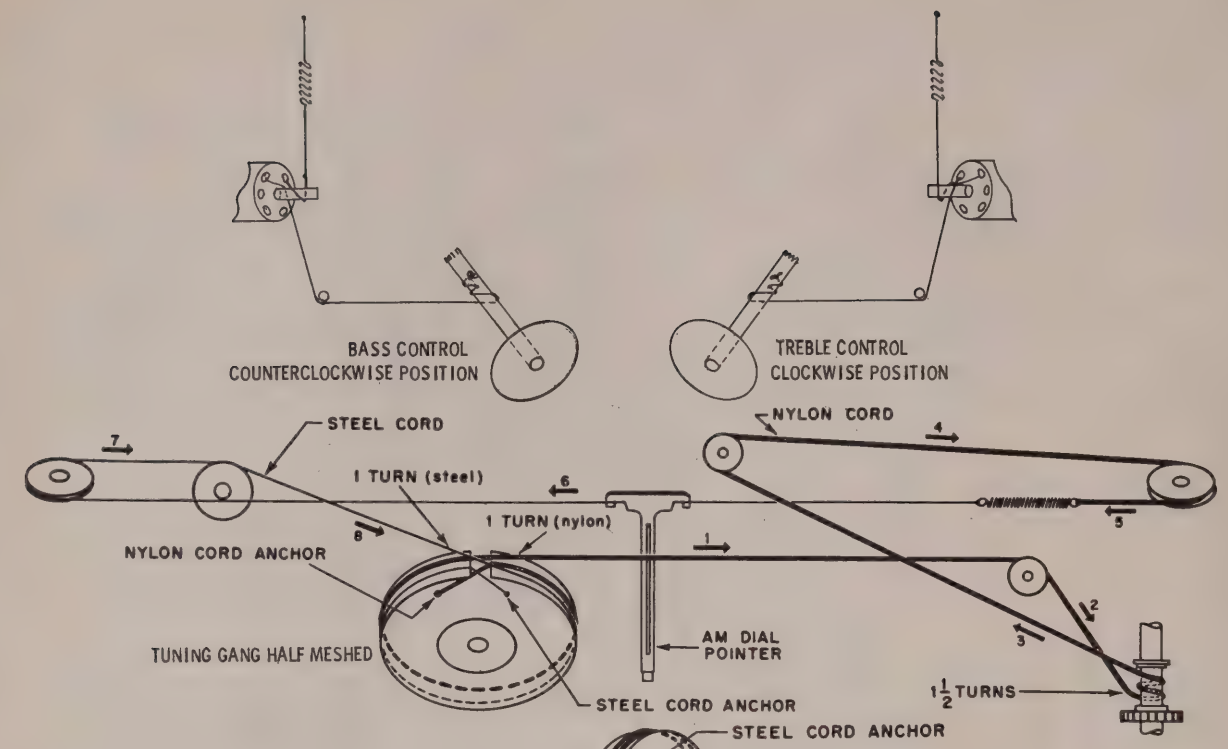
CABINETS & CABINET PARTS

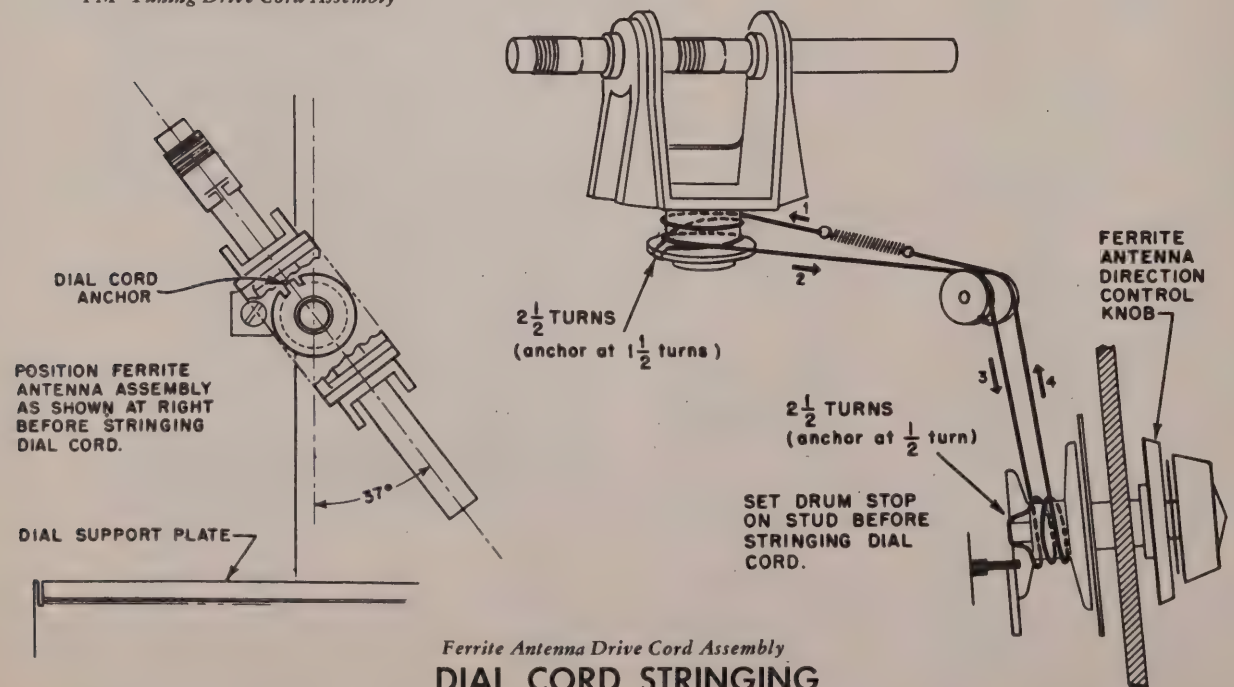
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	104680	Antenna
Knob	104682	Selectivity Switch
Knob	104683	Bass, Treble
Knob	104679	Tuning
Knob	104681	Volume
Dial Glass	104676	

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



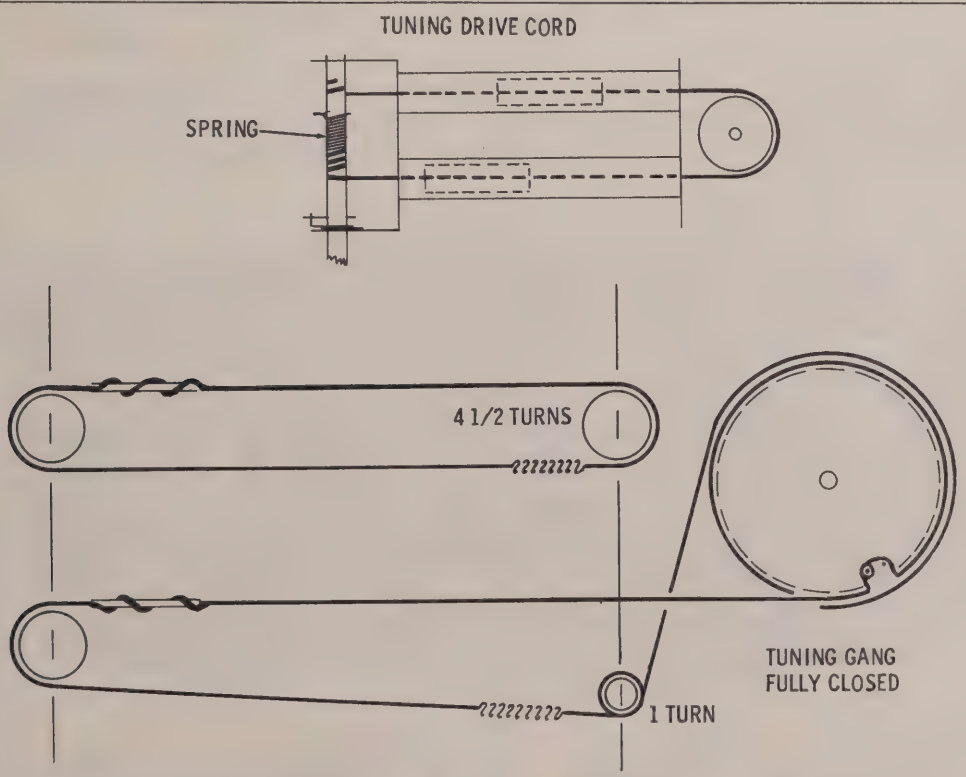

DIAL CORD ANCHOR
POSITION FERRITE ANTENNA ASSEMBLY AS SHOWN AT RIGHT BEFORE STRINGING DIAL CORD.
37°
DIAL SUPPORT PLATE
2½ TURNS
(anchor at 1½ turns)
FERRITE ANTENNA DIRECTION CONTROL KNOB
2½ TURNS
(anchor at ½ turn)
SET DRUM STOP ON STUD BEFORE STRINGING DIAL CORD.

Ferrite Antenna Drive Cord Assembly

DIAL CORD STRINGING

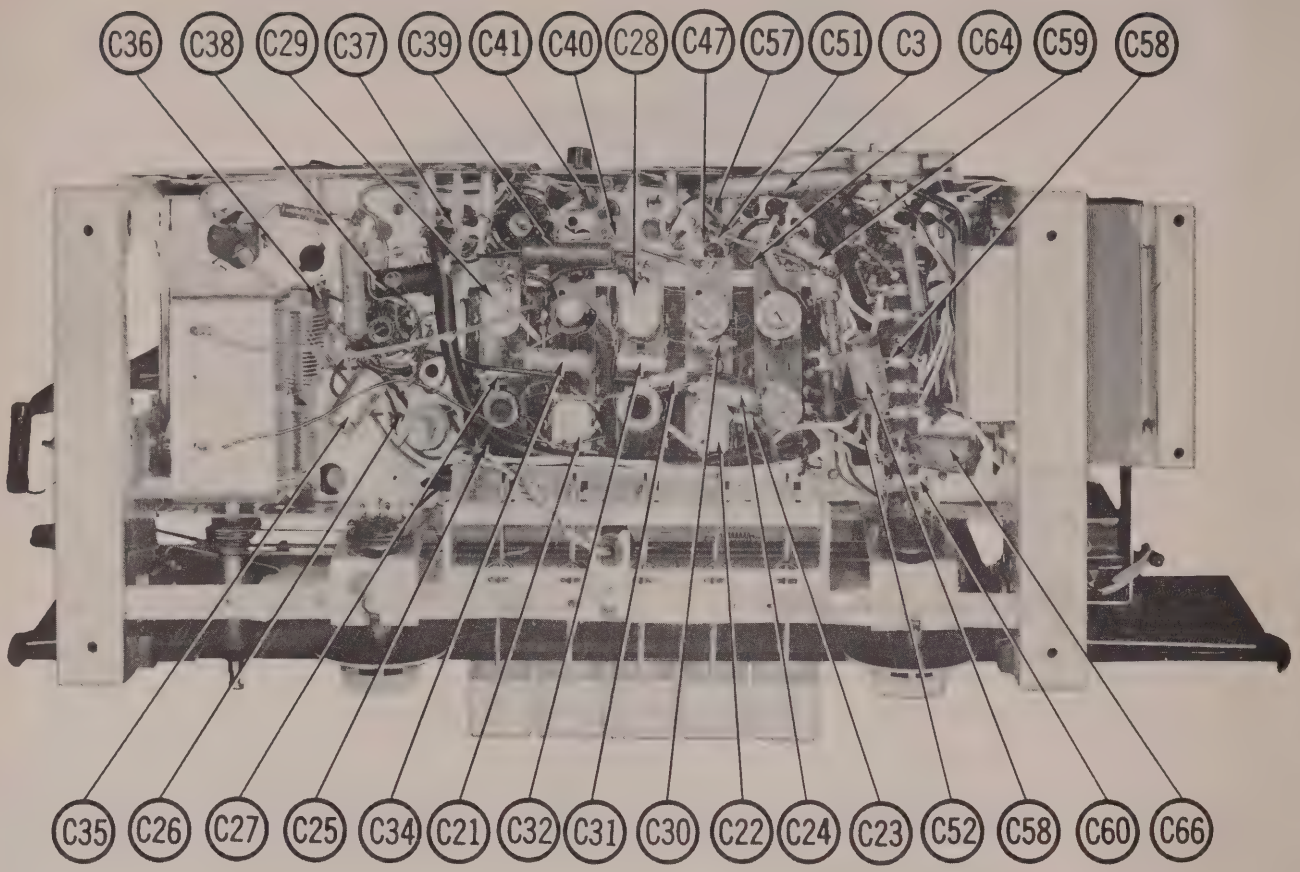
TELEFUNKEN
MODEL "Gavotte 7"

TRADE NAME	Telefunken Model Gavotte 7		
SUPPLIER	American Elite, Inc., 7 Park Ave., New York, N. Y.		
TYPE SET	AC Operated FM-BC-SW Receiver		
TUBES (Six)	Types 6AQ8/ECC85 FM RF Amp.-FM Conv., 6AJ8/ECH81 1st FM IF Amp.-AM Mixer-AM Osc., EF89 2nd FM IF Amp.-AM IF Amp., 6T8/EABC80 Ratio Det.-AM Det.-AVC-AF Amp., 6BR5/EM80 Tuning Indicator, 6BQ5/EL84 Output		
POWER SUPPLY	110-120 Volts AC-60 Cycles	RATING	.46 Amp. @ 117 Volts AC (47 Watts)
TUNING RANGE	BROADCAST 515-1620KC SPECIAL 145-350KC	FREQ. MOD. 88-108MC SHORT WAVE 5.95-18.2MC	

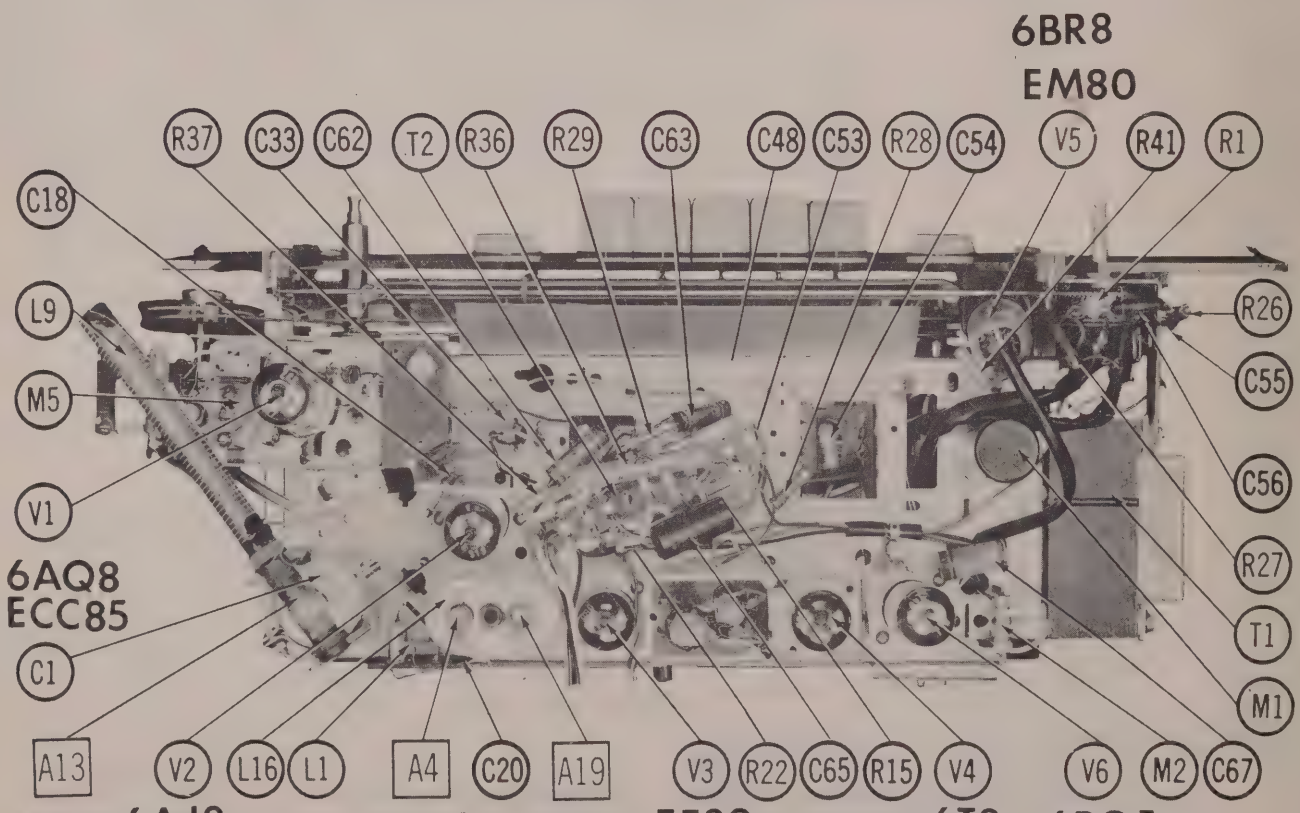


TELEFUNKEN
MODEL "Gavotte 7"

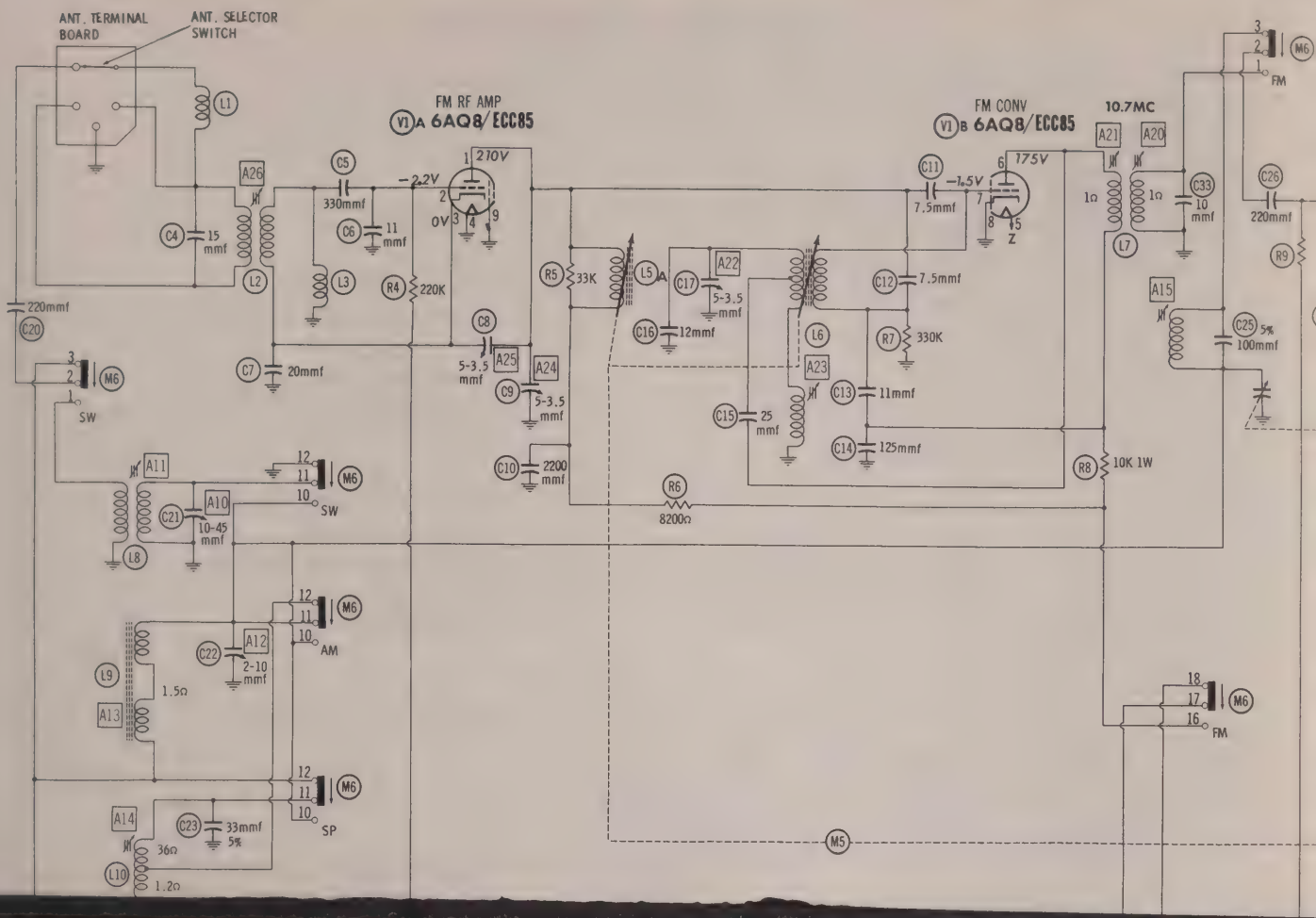
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1958 Howard W. Sams & Co., Inc., Indianapolis 5, Indiana. Printed in U.S. of America

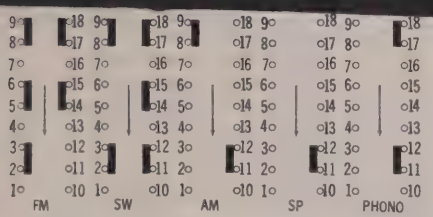


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS TOP VIEW





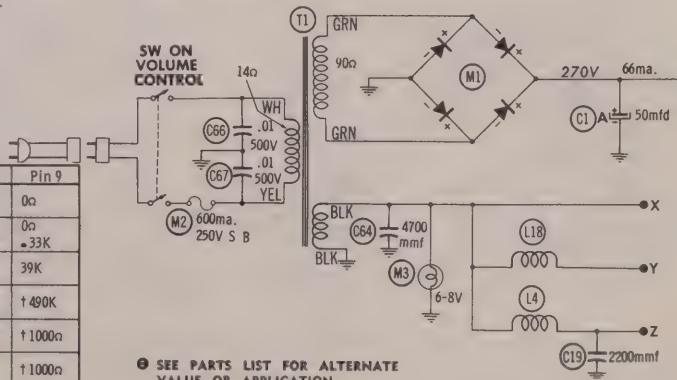
ALL PUSHBUTTONS SHOWN IN "OUT" POSITION

1. DC voltage measurements taken with [illegible]. AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	†10K	2meg	.1Ω	0Ω	.1Ω	†11K	330K	0Ω	0Ω
V2	6AJ8 ECH81	†55K	2.8meg	0Ω	0Ω	.1Ω	†16K	0Ω •33K	†•34K	0Ω •33K
V3	EF89	0Ω	220K •1.8meg	0Ω	.1Ω	0Ω	NC	†3200Ω	†100K	39K
V4	6T8 EABC80	INF	39K	INF	.1Ω	0Ω	220K	0Ω	10meg	†490K
V5	6BR5 EM80	2.5meg •1.7meg	0Ω	NC	.1Ω	0Ω	NC	†1.4meg	NC	†1000Ω
V6	6BQ5 EL84	NC	920K	250Ω	.1Ω	0Ω	NC	†700Ω	NC	†1000Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
† MEASURED FROM OUTPUT OF M1
• MEASURED IN "AM" POSITION
NC NO CONNECTION

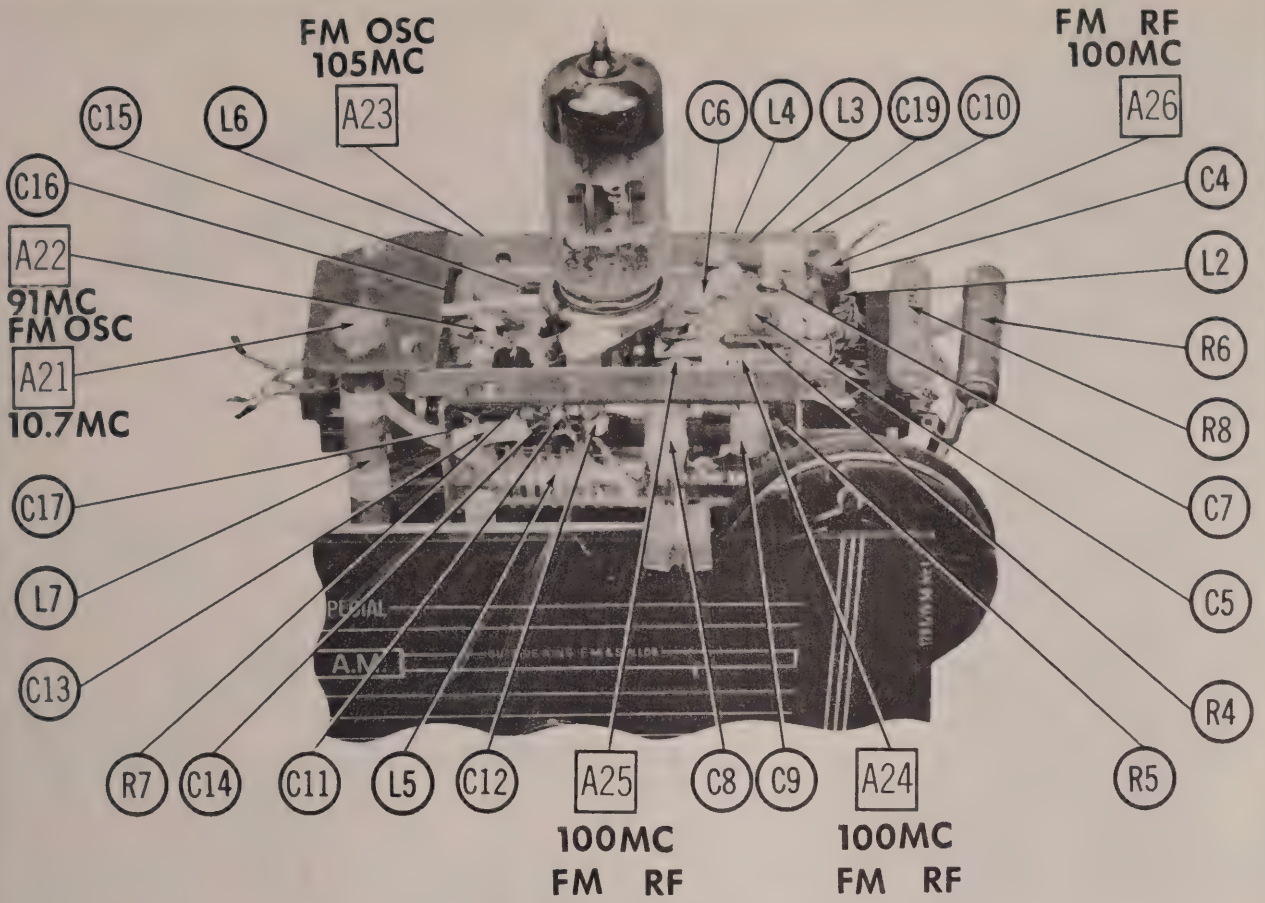


❶ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

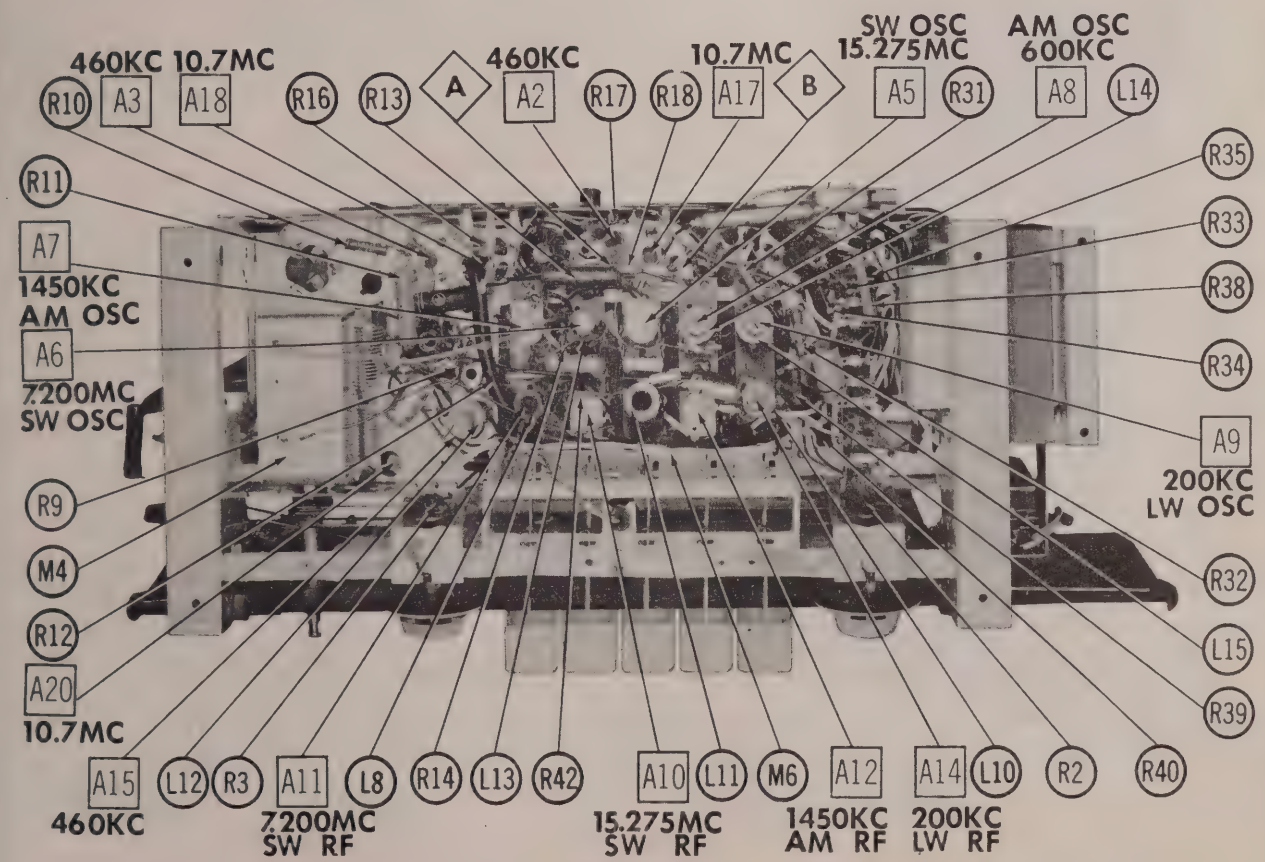
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958



FM RF SUB CHASSIS



CHASSIS BOTTOM VIEW—ALIGN, INDUCTOR, RESISTOR, MISC IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	460KC (400~ Mod)	AM	Near 800KC	Across voice coil	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	15.275MC	SW	15.275MC	"	A5	Adjust for maximum output.
3.	"	"	7.200MC	"	7.200MC	"	A6	Adjust for maximum output. Repeat step 2.
4.	"	"	1450KC	AM	1450KC	"	A7	Adjust for maximum output.
5.	"	"	600KC	"	600KC	"	A8	Adjust for maximum output. Repeat step 4.
6.	"	"	200KC	Special	200KC	"	A9	Adjust for maximum output.
7.	200mmf in series with 100Ω	High side to AM antenna terminal. Low side to chassis.	15.275MC	SW	15.275MC	"	A10	Adjust for maximum output.
8.	"	"	7.200MC	"	7.200MC	"	A11	Adjust for maximum output. Repeat step 7.
9.	"	"	1450KC	AM	1450KC	"	A12	Adjust for maximum output.
10.	"	"	600KC	"	600KC	"	A13	Adjust for maximum output. Repeat step 7.
11.	"	"	200KC	Special	200KC	"	A14	Adjust for maximum output.
12.	0.1mfd	High side to AM antenna stator lug on tuning gang. Low side to chassis.	460KC	AM	Near 800KC	"	A15	Adjust for MINIMUM output.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
13.	500mmf	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point (A). Common to chassis.	A16	Adjust for maximum deflection.
14.	"	"	"	"	"	DC probe to point (B). Common to point (C).	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.
15.	"	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	"	"	"	DC probe to point (A). Common to chassis.	A18, A19	Adjust for maximum deflection.
16.	Direct	High side to ungrounded tube shield on 6AQ8/ECC85 (V1). Low side to chassis.	"	"	100MC	"	A20, A21	"

10.7MC

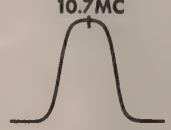


FIG. 1

10.7MC

FIG. 2

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

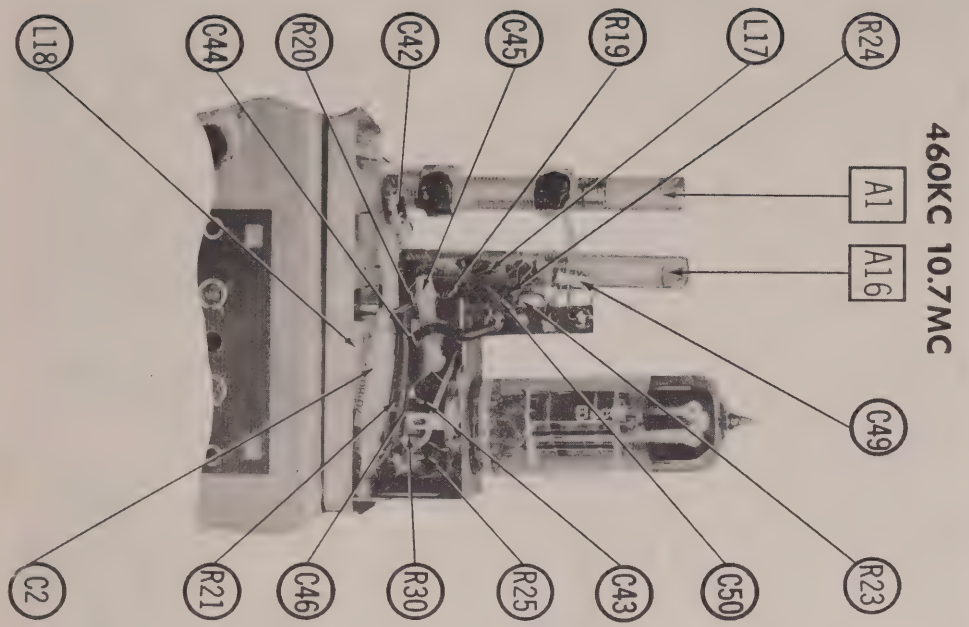
Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
13.	500mmf	High side to pin 2 (grid) of EF89 (V3). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point (A). Low side to chassis.	A16	Disconnect stabilizing capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
14.	"	"	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A17	Reconnect stabilizing capacitor C2. Adjust so that 10.7MC occurs at center of cross-over lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.
15.	"	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	"	"	"	Vert. Amp. to point (A). Low side to chassis.	A18, A19	Disconnect capacitor C2. Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
16.	Direct	High side to ungrounded tube shield on 6AQ8/ECC85 (V1). Low side to chassis.	"	"	100MC	"	A20, A21	"

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
17.	Two 120Ω Carbon Resistors	Across FM antenna terminals	91MC (Unmod)	FM	91MC	DC probe to point (A). Common to chassis.	A22	Adjust for maximum deflection.
18.	"	"	105MC	"	105MC	"	A23	Adjust for maximum deflection. Repeat steps 17 & 18 until no further improvement is obtained.
19.	"	"	100MC	"	100MC	"	A24	Adjust for maximum deflection.
20.	"	"	"	"	"	"	A25	Remove plate voltage (pin 1) from V1 and increase generator signal. Adjust for MINIMUM deflection. Reconnect plate voltage. Repeat steps 19 and 20 until no further improvement is obtained.
21.	"	"	100MC	"	100MC	DC probe to point (A). Common to chassis.	A26	Adjust for maximum deflection. Reconnect capacitor C2.

IF SUB CHASSIS



460KC 10.7MC

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE
V1	FM RF Amp. - FM Conv.	6AQ8/ECC85
V2	1st FM IF Amp. - AM Mixer - AM Osc.	6AJ8/ECH81
V3	2nd FM IF Amp. - AM IF Amplifier	EF89
V4	Ratio Det. - AM Det. - AVC - AF Amp.	6T8/EABC80
V5	Tuning Indicator	6BR5/EM80
V6	Output	6BQ5/EL84

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Telefunken PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	50	385	8234048	PR4-200	BBRQ0174		CDB-Q-422	D-190	TVL-2767
B	50	385							
C2	2	80			BBR4-150	TT150X2		MT-4502	R2547 *
C3	50	18	8234076	PRS25V50	BBR50-25	TC29	TD-50-25	MT-0250	TVA-1206

* Non Catalog Item

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Telefunken PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C4	15			SI 15	D6-150	LT6Q15	GP-15	UC-5415	5GA-Q15	
C5	330			BPD-00033	DD-331	L10T33	ED-330	UC-5333	5GA-T33	
C6	11									
C7	20			SI 20	D6-200	LT6Q2	GP-20	UC-542	5GA-Q2	
C8	5-3.5									
C9	5-3.5									
C10	2200			SI 2200	D6-222	LT6D22	GP-2200	UC-5222	5GA-D22	
C11	7.5									
C12	7.5									
C13	11									
C14	125									
C15	25			SI 25	D6-250	LT6Q25	GP-25	UC-5425	5GA-Q25	
C16	12			SI 12	D6-120	LT6Q12	GP-12	UC-5412	5GA-Q12	
C17	5-3.5									
C18	30			SI 30	D6-300	LT6Q3	GP-30	UC-543	5GA-Q3	
C19	2200			BPD-0022	DD-222	BYA10D22	ED-0022	UC-5222	5GA-D22	
C20	225			1468-00022	D6-221	5W5T22	ED-220	UC-5322	1FM-322	
C21	10-45									
C22	2-10									
C23	33			1469-000033	TCZ-33	22R5Q33	CY10C330J		MS-433	5%
C24	4000					1R5D4		MCE463	MS-24	5%
C25	100			1469-0001	TCZ-100	22R5T1	CY10C101J	MCE235	MS-31	5%
C26	220			1468-00022	D6-221	5W5T22	ED-220	UC-5322	1FM-322	
C27	47			1468-000047	D6-470	5W5Q47	ED-47	UC-5447	1FM-447	
C28	10-45									
C29	10-45									
C30	65									
C31	200			1468-0002	D6-201	5W5T2	ED-200	UC-532	1FM-32	
C32	275									
C33	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C34	4000				D6-402	1R5D4	ED-004	MC463	1FM-24	
C35	4700			1467-0047	D6-472	1R5D47	ED-0047	UC-5247	1FM-247	
C36	4700			SI 4700	D6-472	LT6D47	GP-4700	UC-5247	5GA-D47	
C37	47			1468-000047	D6-470	5W5Q47	ED-47	UC-5447	1FM-447	
C38	.047	125		P288N-047	DF-503	CUB2S47		GEM-4147	2TM-S47	
C39	3			NPO-DI 3.0	D6-030	C10V3C	TCO-3	ZT-553		
C40	4700			BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C41	4700			1467-0047	D6-472	1W5D47	ED-0047	UC-5247	1FM-247	
C42	300			1468-0003	D6-301	5W5T3	ED-300	MC241	1FM-33	
C43	220			BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C44	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C45	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C46	330			1468-00033	D6-331	5W5T33	ED-330	UC-5333	1FM-333	
C47	330			1468-00033	D6-331	5W5T33	ED-330	UC-5333	1FM-333	
C48	.01	600		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C49	300			1468-0003	D6-301	5W5T3	ED-300	MC241	1FM-33	
C50	100			1468-0001	D6-101	5W5T1	ED-100	MC230	1FM-31	
C51	47			1468-000047	D6-470	5W5Q47	ED-47	UC-5447	1FM-447	
C52	100			1468-0001	D6-101	5W5T1	ED-100	MC230	1FM-31	
C53	.01	600		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C54	.01	250		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C55	16									Note 1
C56	4700			SI 4700	D6-472	LT6D47	GP-4700	UC-5247	5GA-D47	
C57	.01	250		P488N-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C58	.047	500		P688N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C59	.01	500		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C60	330			1468-00033	D6-331	5W5T33	ED-330	UC-5333	1FM-333	
C61	10000			1467-01	D6-103	1D3S1	ED-01	MC475	1FM-11	
C62	.0047	500		P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C63	.0047	500		P688N-0047	D6-472	CUB6D47	GP-4700	GEM-6247	6TM-D47	
C64	4700			BPD-0047	DD-472	BYA10D47	ED-0047	UC-5247	5GA-D47	
C65	.15	125		P288N-15		CUB2P15		GEM-2015	2TM-P15	
C66	.01	500		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	
C67	.01	500		P688N-01	D6-103	CUB6S1	GP-10000	GEM-611	6TM-S1	

Note 1. Some versions may use 15mmf in this application.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	Telefunken PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1.3meg	½	8265991					Volume, Tap ⓐ 300K
B	Switch							
R2	16meg	½	8245118					Bass
R3	500K	½	8245119					Treble

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		Telefunken PART No.	NOTES
	OHMS	WATT		
R4	220K			
R5	33K			
R6	8200Ω			
R7	330K			
R8	10K	1		
R9	1meg			
R10	1500Ω 5%			
R11	39K	1		
R12	33K			
R13	33K	1		
R14	100Ω			
R15	1.5meg			
R16	220K			
R17	2200Ω			
R18	100K 5%			
R19	47Ω			
R20	100K			
R21	39K			
R22	2.2meg			

ITEM No.	RATING		Telefunken PART No.	NOTES
	OHMS	WATT		
R23	220K			
R24	100K			
R25	10meg			
R26	47K			
R27	220Ω			
R28	1500Ω			
R29	6800Ω			
R30	4700Ω			
R31	220K			
R32	220K			
R33	2200Ω			
R34	100K			
R35	820K			
R36	1000Ω	2		
R37	4700Ω			
R38	250Ω			
R39	1.5meg			
R40	2.2meg			
R41	470K			
R42	4700Ω			

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA						
	PRI.	SEC. 1	SEC. 2	Telefunken PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117V ⓐ .46A	220V ⓐ .066A	6.3V ⓐ 2.7A	9037360						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA							NOTES
	PRI.	SEC.	Telefunken PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6800Ω	3-4Ω	9036755							

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	Telefunken PART No.	QUAM PART No.	
SP1	7" X 10"	PM	3-4Ω	9044416		
SP2	2" X 6 1/4"	Electrostatic		8213606		
SP3	2" X 6 1/4"	Electrostatic		8213606		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Telefunken PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L1	FM Ant. Coil	7037362					
L2	FM Ant. Trans	*					
L3	RF Choke	*					
L4	Fil. Choke	*					
L5A	FM RF Coil	*					
B	SW Osc. Coil	*					

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					NOTES
		Telefunken PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	
L6	FM Osc. Coil	*					
L7	1st FM IF	*					
L8	SW Ant. Trans.	9036219					
L9	Loop Stick	9037361					
L10	LW Ant. Coil	7035802					
L11	Ant. Coil	7035803					
L12	IF Trap Coil	9037077					
L13	SW Osc. Coil	7035805					
L14	BC Osc. Coil	9037082					
L15	LW Osc. Coil	9037083					
L16	2nd FM IF 1st AM IF	9044346					
L17	FM Ratio Det. 2nd AM IF	9049358					
L18	Fil. Choke	▲					
L19	Speaker Lead Choke	9045251					
L20	Speaker Lead Choke	9045251					

* Part of complete FM tuning assembly #9049703.

▲ Part of L17.

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	Telefunken PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.066A	6043621 (B250C75L)		60-9150 ①		① Two required.

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Telefunken PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		0.6A 250V S/B	8248265	7041261				

MISCELLANEOUS

ITEM No.	PART NAME	Telefunken PART No.	NOTES
M3	Pilot Lamp	8247002	6-8V .3A
M4	Tuning Cap.	8236026	AM 2 Gang (Ant. 12-500mmf) (Osc. 12-550mmf)
M5	FM Tuning Ass'y	9049703	
M6	Switch	9046016	Pushbutton Assembly, Complete with Coils

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Knob	8213016	AM Tuning
Knob	8213015	On-Off-Volume
Knob	8213014	FM Tuning
Knob	9024882	Bass, Treble
Cabinet	8700097	
Dial	8213647	
Pointer	9044361	Special, AM, Shortwave
Pointer	9044352	FM

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting)..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT* Folder

EIA MEMBER ELECTRONIC INDUSTRIES ASSOCIATION

TONFUNK MODEL 7046M

TONFUNK MODEL 7046M

TONFUNK MODEL 7046M

TRADE NAME	Tonfunk Model 7046M		
SUPPLIER	Videola-Erie Corp., 75 Front St., Brooklyn 1, N. Y.		
TYPE SET	AC Operated FM-BC-SW Receiver With 3 Speed Automatic Record Changer		
TUBES (Seven)	Types 6AQ8/ECC85 FM RF Amp. - FM Conv., 6AJ8/ECH81 1st FM IF Amp. - AM Mixer - AM Osc., 6DA6/EF89 2nd FM IF Amp. - 1st AM IF Amp., 6T8/EABC80 Ratio Det. - AM Det. - AVC - AF Amp., 6BR5/EM80 Tuning Indicator, 6BM8/ECL82 AF Amp. - Hi Freq. Output, 6BQ5/EL84 Lo Freq. Output		
POWER SUPPLY	110-120 Volts AC-50/60 Cycles	RATING	.70 Amp. @ 117 Volts AC (74 Watts)
TUNING RANGES	BROADCAST 515-1650KC SHORTWAVE 5.9-18.75MC	FREQ. Mod.	88-108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE PERPETUUM-EBNER MODEL REX "A" — PHOTOFACT SET 378 FOLDER 10

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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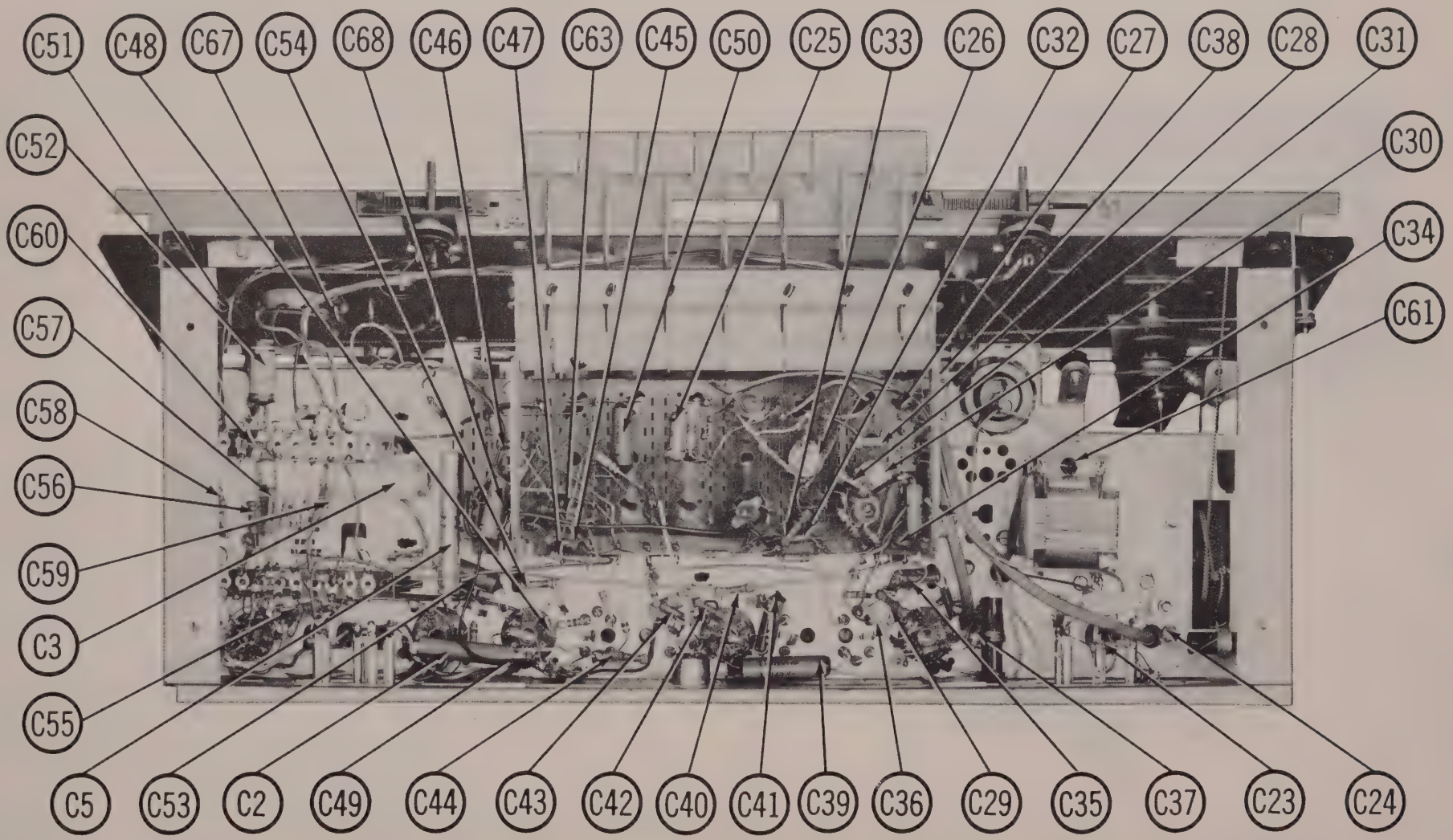
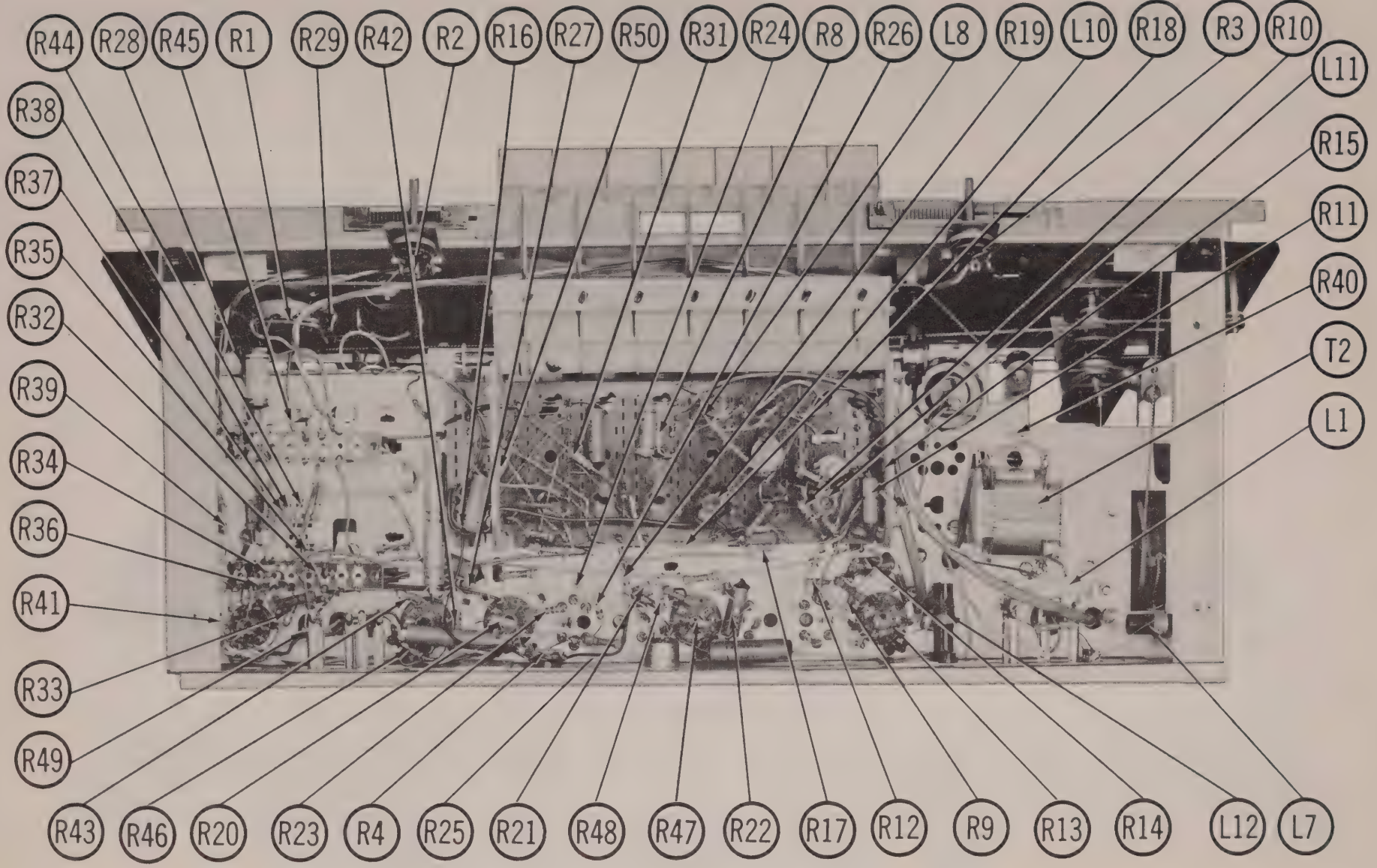
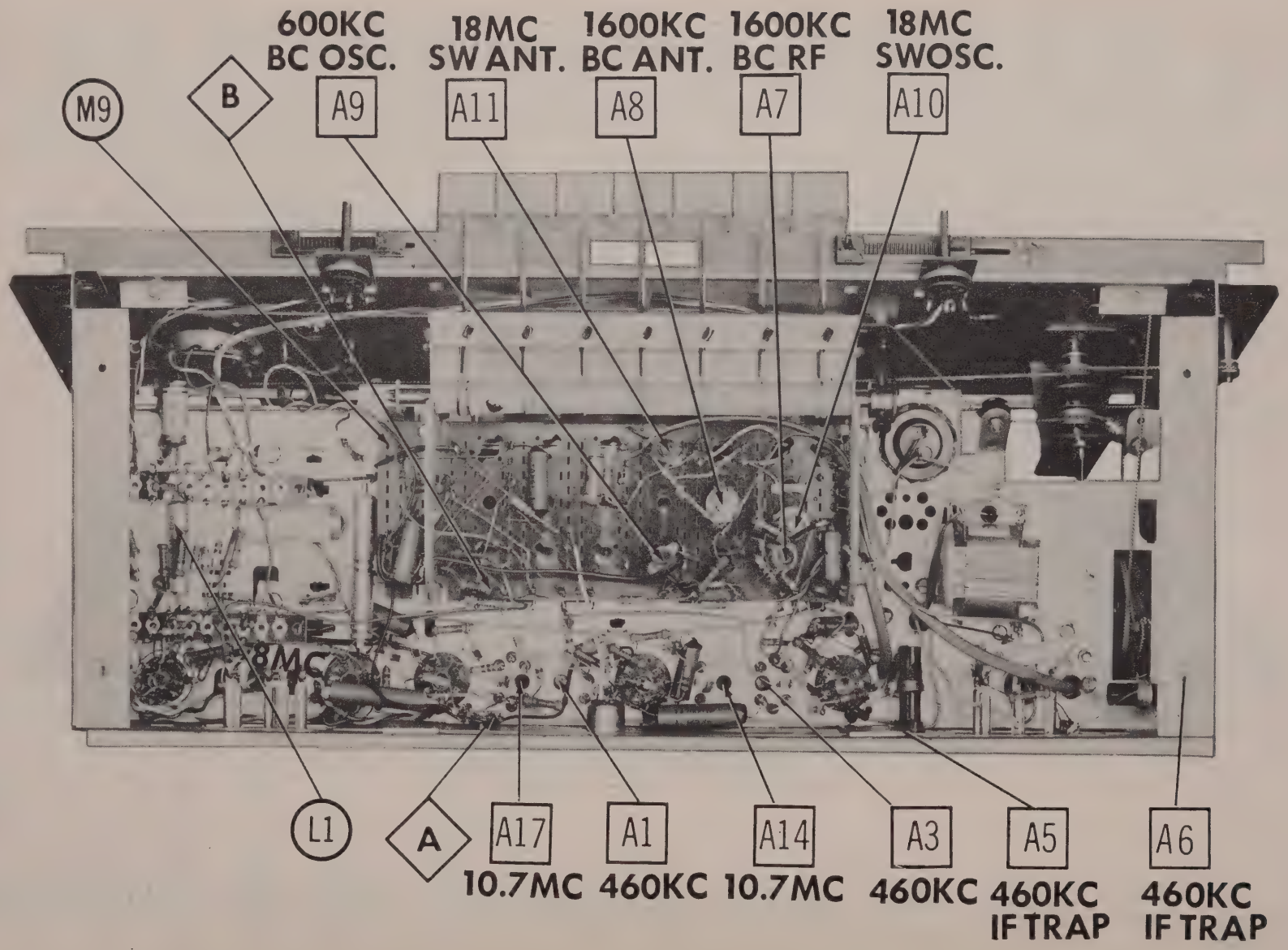
H252



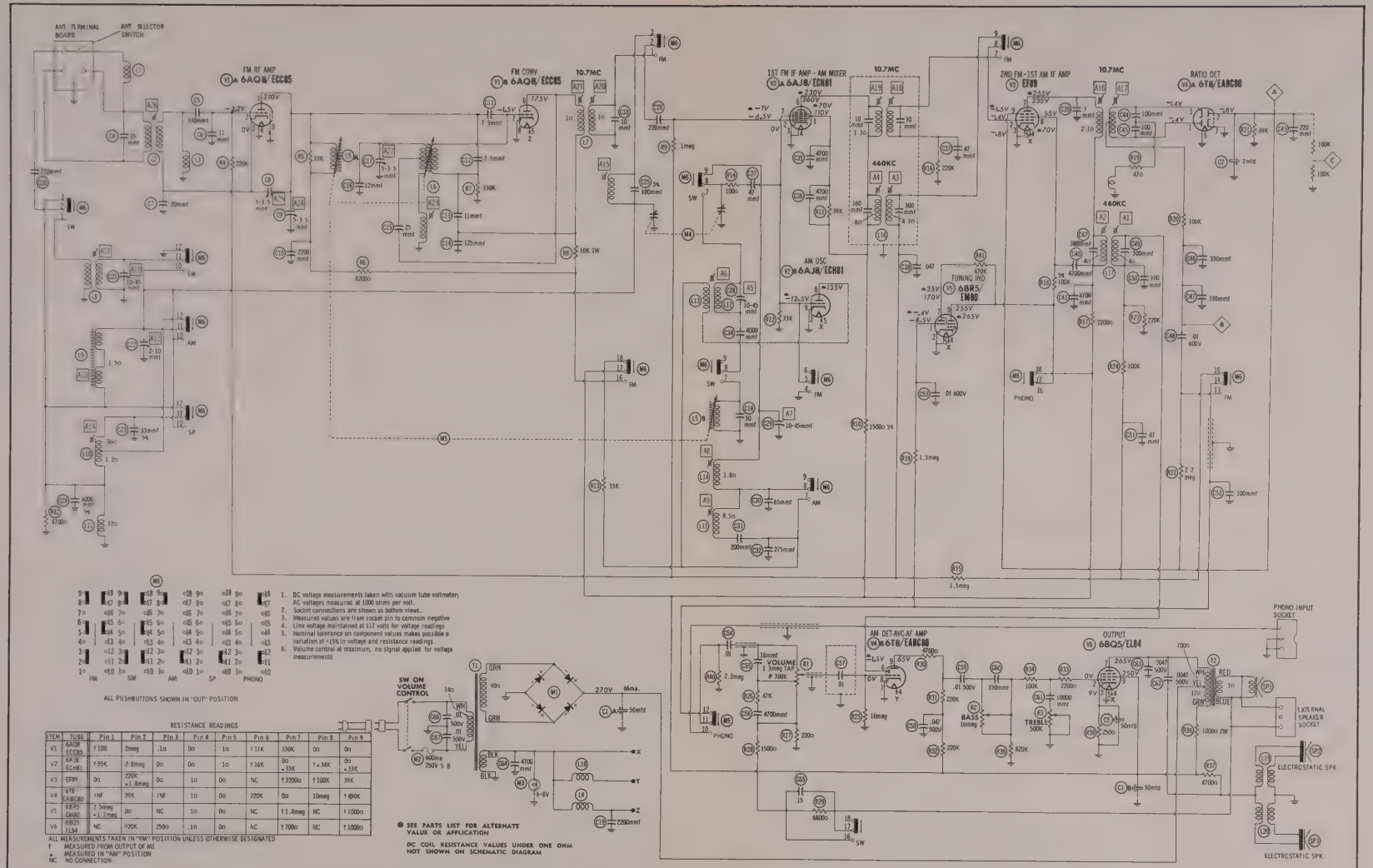
CHASSIS-BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS-BOTTOM VIEW-RESISTOR IDENTIFICATION



CHASSIS-BOTTOM VIEW- ALIGNMENT IDENTIFICATION



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative
4. Line voltage maintained at 117 volts for voltage readings
5. Nominal tolerance on component values makes possible a variation of +15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements

ALL PUSHBUTTONS SHOWN IN "OUT" POSITION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	↑10K	2meg	.1Ω	0Ω	1Ω	↑11K	330K	0Ω	0Ω
V2	6AJ8 ECH81	↑55K	2.8meg	0Ω	0Ω	1Ω	↑16K	0Ω *33K	↑∞34K	0Ω *33K
V3	EF89	0Ω	220K *1.8meg	0Ω	1Ω	0Ω	NC	↑3200Ω	↑100K	39K
V4	6T8 EABC80	INF	39K	INF	1Ω	0Ω	220K	0Ω	10meg	↑490K
V5	6BR5 EM80	2.5meg *1.7meg	0Ω	NC	1Ω	0Ω	NC	↑1.4meg	NC	↑1000Ω
V6	6BQ5 EL84	NC	920K	250Ω	1Ω	0Ω	NC	↑700Ω	NC	↑1000Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM OUTPUT OF M1
* MEASURED IN "AM" POSITION
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
Howard W. Sams & Co., Inc. 1958

399-12

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Use an insulated alignment screwdriver for adjusting.

AM ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01mfd	High side to pin 2 (grid) of 6AJ8/ECH81 (V2). Low side to chassis.	460KC (400∿ Mod)	BC	Tuning gang fully open	Across voice coil	A1, A2, A3, A4	Adjust for maximum deflection.
2.	200mmf	High side to AM antenna terminal. Low side to chassis.	"	"	"	"	A5, A6	Adjust for MINIMUM deflection.
3.		Loop	1600KC	BC; FA	1600KC	"	A7, A8	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	600KC	"	600KC	"	A9	"
5.	200mmf	High side to AM antenna terminal. Low side to chassis.	18MC	SW	18MC	"	A10, A11	Adjust for maximum deflection.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓒ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	200mmf	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	10.7MC (Unmod)	FM	Point of non-interference	DC probe to point Ⓐ. Common to chassis.	A12, A13 A14, A15 A16	Adjust for maximum deflection.
7.	"	"	"	"	"	DC probe to point Ⓑ. Common to point Ⓒ.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	200mmf	High side to pin 2 (grid) of 6AQ8/ECC85 (V1). Low side to chassis.	10.7MC (450KC Swp)	FM	Point of non-interference	Vert. Amp. to point Ⓐ. Low side to chassis.	A12, A13 A14, A15 A16	Disconnect stabilizing capacitor (C2). Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
7.	"	"	"	"	"	Vert. Amp. to point Ⓑ. Low side to chassis.	A17	Reconnect stabilizing capacitor (C2). Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A12 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	BAND SWITCH POS.	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	270Ω Carbon Resistor	Across FM antenna terminals	105MC (Unmod)	FM	105MC	DC probe to point Ⓐ. Common to chassis.	A18, A19	Adjust for maximum deflection.
9.	"	"	90MC	FM	90MC	"	A20, A21	Adjust for maximum deflection. Repeat steps 8 & 9 until no further improvement is noted.

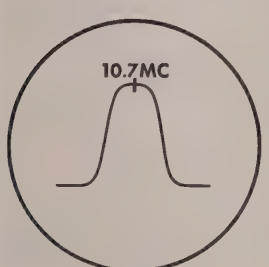


FIG. 1

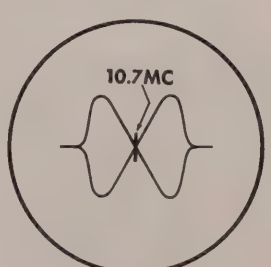


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	FM RF Amp. - FM Conv.	6AQ8/ECC85	
V2	1st FM IF Amp. - AM Mixer - AM Oscillator	6AJ8/ECH81	
V3	2nd FM IF Amp. - 1st AM IF Amp.	6DA6/EF89	

ITEM No.	USE	TYPE	NOTES
V4	Ratio Detector - AM Det. - AVC - AF Amp.	6T8/EABC80	
V5	Tuning Indicator	6BR5/EM80	
V6	AF Amp. - Hi Freq. Output	6BM8/ECL82	
V7	Lo Freq. Output	6BQ5/EL84	

ELECTROLYTIC CAPACITORS

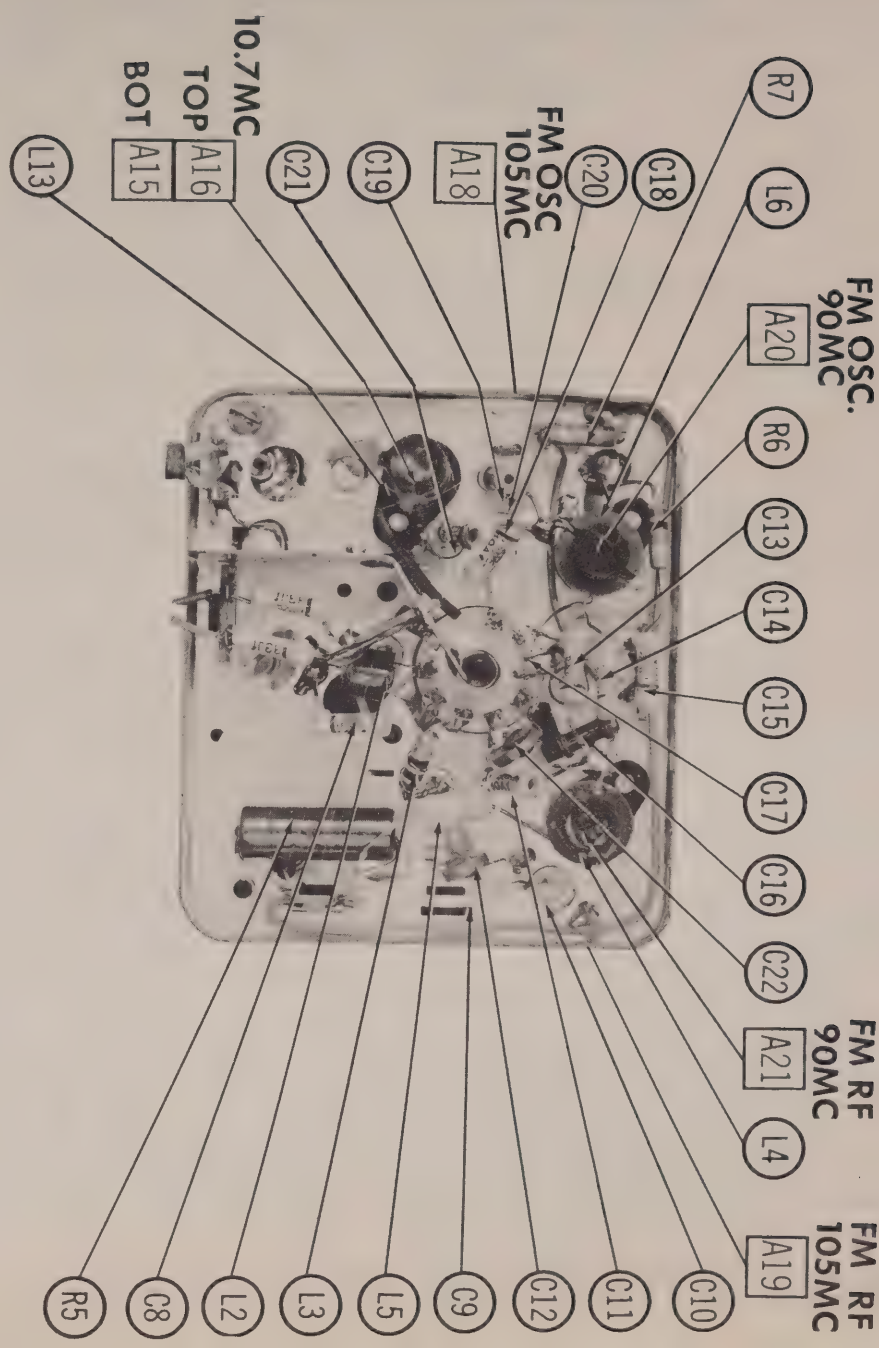
ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TONFUNK PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
1A	50	385		PRS450V4040	BBRQ0174		CDB-Q-422	D-190	TVA-4750
1B	50	385							
2	4	80		PRS150V4	BBR4-150	TC40	TD-4-150	MT-1504	TVA-1402
3	8	385		PRS450V8	BR845	TC71	TD-8-450	MT-4508	TVA-1704
4	25	35		PRS50V25	BBR25-50	TC36	TD-25-50	MT-0525	TVA-1306
5	100	15		PRS15V100	BBR100-15	TC2501	TD-100-15	MTH-1510	TVA-1160

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TONFUNK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C6	33			SI 33	D6-330	LT6Q33	GP-33	UC-5433	5GA-Q33	
C7	33			SI 33	D6-330	LT6Q33	GP-33	UC-5433	5GA-Q33	
C8	16									①
C9	4									
C10	10									
C11	30			SI 30	TCZ-30	CTA6Q3C	GP-30		5GA-Q3	
C12	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C13	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C14	12			SI 12	D6-120	LT6Q12	GP-12	UC-5412	5GA-Q12	
C15	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C16	30			SI 30	TCZ-30	CTA6Q3C	GP-30		5GA-Q3	
C17	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C18	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C19	15			SI 15	D6-150	LT6Q15	GP-15	UC-5415	5GA-Q15	
C20	25									
C21	35									
C22	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C23	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C24	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C25	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C26										
C27	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C28	33			SI 33	D6-330	LT6Q33	GP-33	UC-5433	5GA-Q33	
C29	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C30										
C31	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	①②
C32	330			SI 330	D6-331	LT6T33	GP-330	UC-5333	5GA-T33	①②
C33	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C34	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C35	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C36	2500			SI 2500	D6-252	LT6D25	GP-2500	UC-5225	5GA-D25	
C37	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C38	4700			SI 4700	D6-472	LT6D47	GP-4700	UC-5247	5GA-D47	
C39	47000			P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C40	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C41	22000			P488N-022	DF-203	CUB4S22	ED-02	GEM-4122	4TM-S22	

FM RF SUB-CHASSIS



PARTS LIST AND DESCRIPTIONS (Continued)

CAPACITORS (cont)

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TONFUNK PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C42	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C43	4700			SI 4700	D6-472	LT6D47	GP-5000	UC-5247	5GA-D47	
C44	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C45	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C46	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C47	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C48	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C49	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C50	22000			P688N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C51	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C52	.1	125		P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C53	22000			P488N-022	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C54	100			SI 100	D6-101	LT6T1	GP-100	UC-531	5GA-T1	
C55	10000			SI 10000	D6-103	LT6S1	GP-10000	GEM-411	5GA-S1	
C56	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C57	10000			SI 10000	D6-103	LT6S1	GP-10000	GEM-411	5GA-S1	
C58	2000			SI 2000	D6-202	LT6D2	GP-2000	UC-522	5GA-D2	
C59	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C60	1000			SI 1000	D6-102	LT6D1	GP-1000	UC-521	5GA-D1	
C61	500			SI 500	D6-501	LT6T5	GP-500	UC-535	5GA-T1	
C62	10000			SI 10000	D6-103	LT6S1	GP-10000	GEM-411	5GA-S1	
C63	4700			SI 4700	D6-472	LT6D47	GP-4700	UC-5247	5GA-D47	
C64	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C65	5000			SI 5000	D6-502	LT6D5	GP-5000	UC-525	5GA-D5	
C66A	10000			SI 10000	D6-103	LT6S1	GP-10000	GEM-411	5GA-S1	
B	10000			SI 10000	D6-103	LT6S1	GP-10000	GEM-411	5GA-S1	
C67	150			SI 150	D6-151	LT6T15	GP-150	UC-5315	5GA-T15	
C68	.047	250		P488N-047	DF-503	CUB4S47		GEM-4147	4TM-S47	

① Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TONFUNK PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1meg	½						Volume, Tap @ 3000Ω, 300K
R2	100K	½						Treble
R3	500K	½						Bass
R4	3500Ω	½						Bias Adjust

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R5	10K	2		
R6	1meg			
R7	15K			
R8	22K			
R9	47K			
R10	100Ω			
R11	33K	1		
R12	330Ω			
R13	1meg			
R14	47K	1		
R15	330Ω			
R16	15K			
R17	2.2meg			
R18	2.2meg			
R19	330Ω			
R20	33K			
R21	47K	1		
R22	100Ω			

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R23	100Ω			
R24	22K			
R25	220K			
R26	100K			
R27	10meg			
R28	1000Ω			
R29	220K			
R30	20K			
R31	22K			
R32	10K			
R33	1meg			
R34	47K			
R35	100K			
R36	2200Ω			
R37	2200Ω			
R38	820K			
R39	1meg			
R40	47K			

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R41	560Ω	1		
R42	1meg			
R43	2200Ω			
R44	100K			
R45	470K			
R46	180Ω			

ITEM No.	RATING OHMS	RATING WATT	TONFUNK PART No.	NOTES
R47	100K			
R48	2.2meg			
R49	1meg			
R50	2.2meg			
R51	470K			
R52	1000Ω	6		

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA TONFUNK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	220V Tap @ 127V, 110V @ .70A	240V @ .110A	6.3V @ 3.8A	BV257						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TONFUNK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	17K	6-8Ω	A123							

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TONFUNK PART No.	Halldorson PART No.	Merit PART No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	4900Ω	3-4Ω	A110B/111B							

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TONFUNK PART No.	QUAM PART No.	NOTES
SP1	7 3/4" X 12"	PM	3-4Ω	P2031	57A21Z5.6	① Connect in series and phase.
SP2	5" X 7"	PM	6-8Ω	P1318		
SP3	4"	PM	6-8Ω	573 ①		
SP4	4"	PM	6-8Ω	573 ①		
SP5	3"	Electrostatic		LSH75K		
SP6	3"	Electrostatic		LSH75K		
SP7	3"	Electrostatic		LSH75K		
SP8	3"	Electrostatic		LSH75K		

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA TONFUNK PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L1	FM Ant. Coil						
L2	FM Ant. Trans.						
L3	RF Choke						Wound on 10Ω resistor

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA					
		TONFUNK PART No.	Meissner PART No.	Merit PART No.	Miller PART No.	Ram PART No.	NOTES
L4	FM RF Coil		19-1001	BC-562	4604		1.5 Microhenries
L5	RF Choke						
L6	FM Osc. Coil		15-2866				
L7	IF Trap						
L8	AM Ant. Trans.						
L9	Loop Stick						
L10	BC Osc. Coil						
L11	SW Osc. Coil						
L12	IF Trap		15-2866				
L13	1st FM IF						
L14	2nd FM IF and 1st AM IF Assembly						
L15	FM Ratio Det. and 2nd AM IF Assembly						

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	TONFUNK PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	
M1	.102A	B250C125		60-9150 ①		① 2 Required

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			TONFUNK PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2		1 Amp						

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	TONFUNK PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M3				56	PT-1	

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	TONFUNK PART No.	JENSEN PART No.	WALCO PART No.	
M4		† ♦ RX550SD ♦ RX550D	† W-98TPS or ♦ W-98DS	† Jewel ♦ Diamond

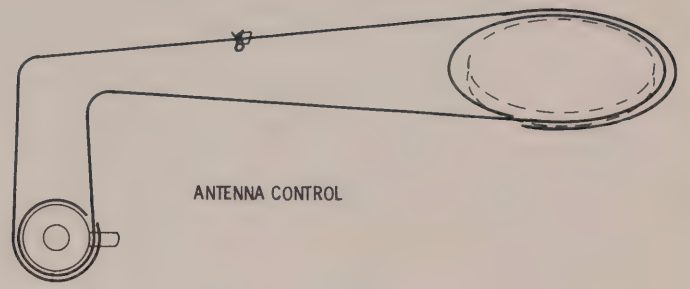
MISCELLANEOUS

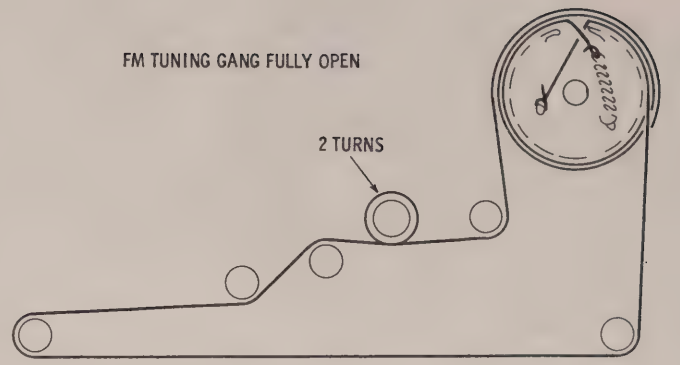
ITEM No.	PART NAME	TONFUNK PART No.	NOTES
M5	Dial Lamp		6-8V
M6	Dial Lamp		6-8V
M7	Tuning Cap.		2 Gang (AM: Ant. 15-550mmf, Osc. 12-550mmf)
M8	Tuning Cap.		FM 2 Gang
M9	Keyboard		Switch Assembly (Complete)

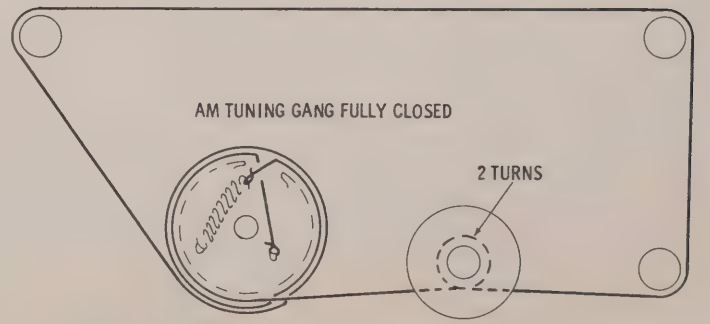
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

DIAL CORD STRINGING



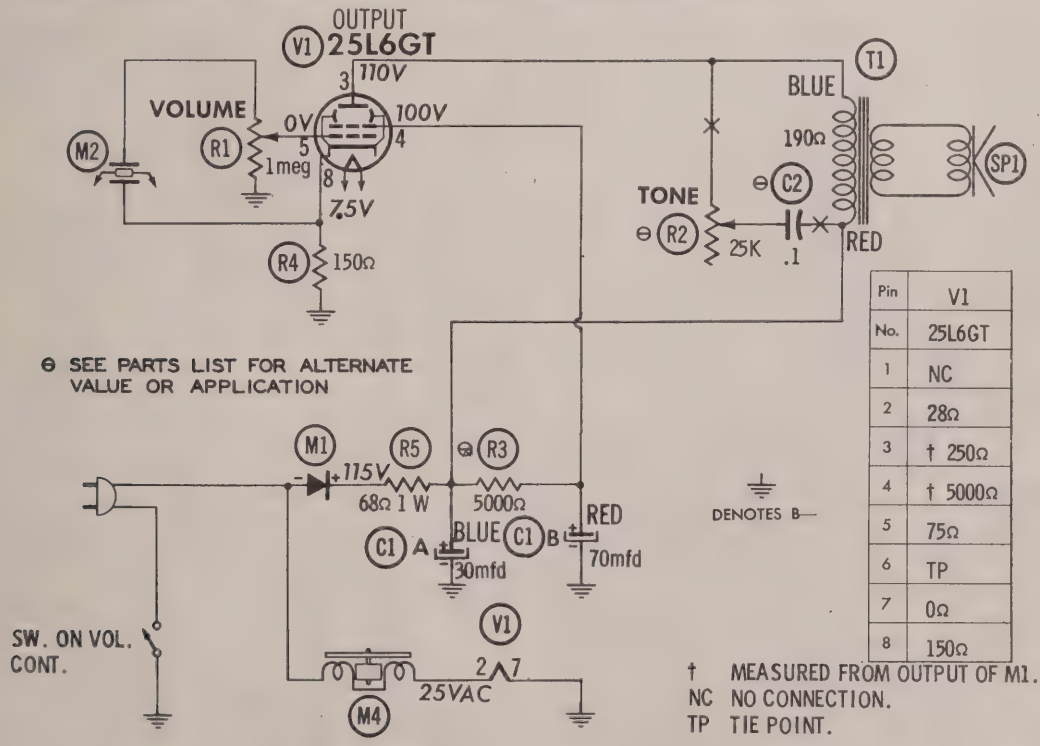




TRUETONE MODELS
D5770B, D5771B, D5772B, D5773B

TRADE NAME	Truetone Models D5770B, D5771B, D5772B, D5773B		
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.		
TYPE SET	AC Operated Phono Amplifier		
TUBES (One)	Type 25L6GT Output		
POWER SUPPLY	105-125 Volts AC-60 Cycles	RATING	.37 Amp. @ 117 Volts AC

MODEL D5770B HAS A 3 SPEED MANUAL RECORD PLAYER
MODELS D5771B, D5772B HAVE 4 SPEED MANUAL RECORD PLAYERS
MODEL D5773B HAS A 45RPM AUTOMATIC RECORD CHANGER — CRESCENT MODEL 450-33



Pin No.	V1 25L6GT
1	NC
2	28Ω
3	† 250Ω
4	† 5000Ω
5	75Ω
6	TP
7	0Ω
8	150Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.
TP TIE POINT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Output	25L6GT	Note 1

ITEM No.	USE	TYPE	NOTES

Note 1. Type 25C5 may be used in Model D5772B

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	150	150-129	PRS150V50	BBRT53215	TCT3107	TDLT-15	FMT-315	R1470 *
B	70	150	(Note 1)	3020					

Note 1. Some versions use 50-30MFD in this application. * Non Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.1	400	152-108	P488N-1	DF-104	CUB4P1		GEM-401	4TM-S1	Note 1

Note 1. Not used in Model D5770B

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	120-119	B-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R2A	25K	½	120-130	B-26	A47-25K-S	Q11-120	U29	Tone, Note 1
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

Note 1. Not used in Model D5770B.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No.	NOTES
R3	4700Ω		180-133	
R4	150Ω		180-111	

ITEM No.	RATING OHMS	RATING WATT	TRUETONE PART No.	NOTES
R5	68Ω	1	180-129	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2800Ω	3-4Ω	138-120 ①	Z1101	A-3025	A-3332	22S45 ②	S-12X	① Used in Models D5771B, D5772B, D5770B. In Model D5773B, T1 is part of Speaker Part #175-129. ② Drill new mounting hole.

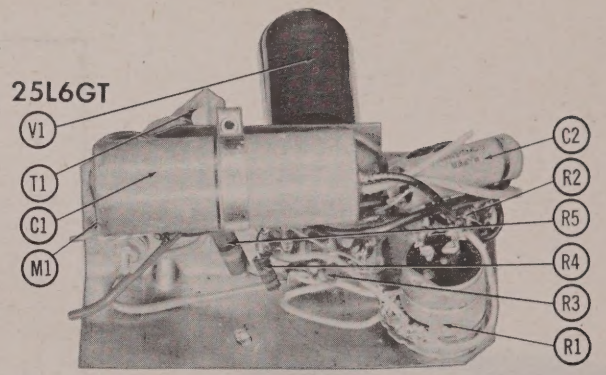
SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA TRUETONE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	175-129 ①	4A07	① Used in Models D5771B, D5773B.
	4"	PM	3-4Ω	175-125 ②	4A07	② Used in Models D5772B, D5770B.

SELENIUM RECTIFIER

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA TRUETONE PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	SARKES TARZIAN PART No.	NOTES
M1	.046A	265-104	1002A	RS065Q	65	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA TRUETONE PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M2	X450-202	310-TS *B-310-T	N-8-1 or N-8-3	56 * 2756	PT-1	* Tone Arm Complete with cartridge
	X450-201	310-2 *B-310-2	N-8-2			Used in Model D5770B only * Tone Arm Complete with cartridge

ASTATIC NEEDLE LISTING SHOWN ABOVE IS SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

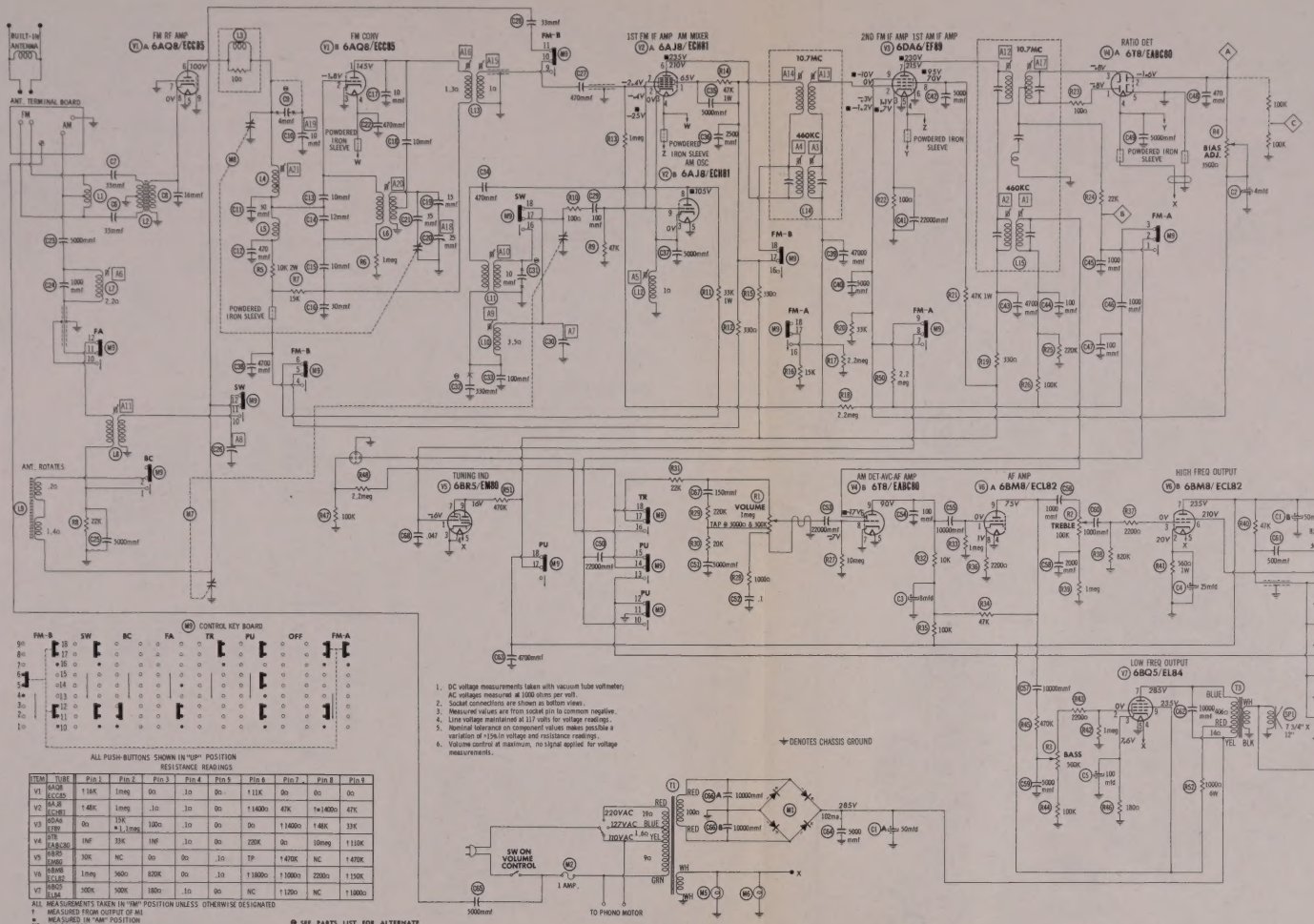
ITEM No.	REPLACEMENT DATA TRUETONE PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M3	N450-202	† CRA55 or ♦ CRA55D and † CRA55LP or ♦ CRA55LPD		† Jewel ♦ Diamond
	N-450-201 *	† CRA-552 and ♦ CRA-552D		* Model D5770B only

MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M4	Phono Motor	400-104	Models D5771B, D5772A
	Phono Motor	400-103	Model D5770B
	Phono Motor	Y700001	Model D5773B

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

ALL PUSH-BUTTONS SHOWN IN "UP" POSITION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8 ECC85	↑16K	1meg	0Ω	.1Ω	0Ω	↑11K	0Ω	0Ω	0Ω
V2	6AJ8 ECH81	↑48K	1meg	.1Ω	.1Ω	0Ω	↑1400Ω	47K	1w1400Ω	47K
V3	6DA6 EF89	0Ω	15K ●1.1meg	100Ω	.1Ω	0Ω	0Ω	↑1400Ω	↑48K	33K
V4	6T8 EABC80	INF	33K	INF	.1Ω	0Ω	220K	0Ω	10meg	↑110K
V5	6BR5 EM80	30K	NC	0Ω	0Ω	.1Ω	TP	↑470K	NC	↑470K
V6	6BM8 ECL82	1meg	560Ω	620K	0Ω	.1Ω	↑1800Ω	↑1000Ω	2200Ω	↑150K
V7	6BQ5 EL84	300K	500K	180Ω	.1Ω	0Ω	NC	↑120Ω	NC	↑1000Ω

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED
↑ MEASURED FROM OUTPUT OF MI
● MEASURED IN "AM" POSITION
NC NO CONNECTION
TP TIE POINT

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

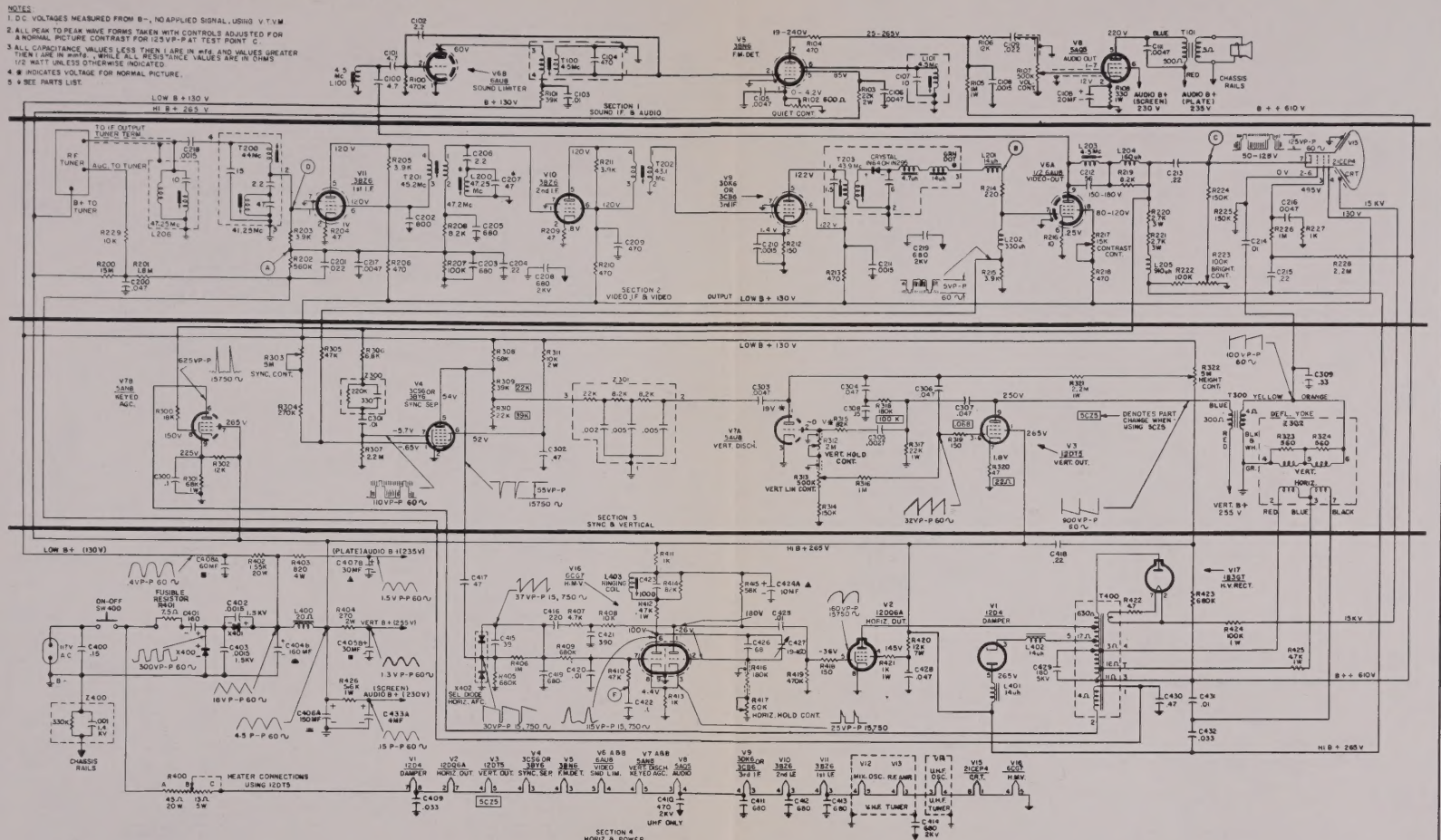
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC

Howard W. Sams & Co., Inc. 1958

399-13

WESTINGHOUSE MODELS H-21K210, A, H-21K211, A, H-210KU210, A, H-21KU211A, H-21T206, A, H-21T207, A, H-21TU206, A, H-21TU207, A (Ch. V-2364-1, -2, -3, -4)


NOTES:
1. D.C. VOLTAGES MEASURED FROM B−, NO APPLIED SIGNAL, USING V.T.V.M.
2. ALL PEAK TO PEAK WAVE FORMS TAKEN WITH CONTROLS ADJUSTED FOR A NORMAL PICTURE CONTRAST FOR 125 VP-P AT TEST POINT C.
3. ALL CAPACITANCE VALUES LESS THEN 1 ARE IN mfd. AND VALUES GREATER THEN 1 ARE IN mmfd., WHILE ALL RESISTANCE VALUES ARE IN OHMS 1/2 WATT UNLESS OTHERWISE INDICATED.
4. ✱ INDICATES VOLTAGE FOR NORMAL PICTURE.
5. ▲ SEE PARTS LIST.
SECTION 1 SOUND I.F. & AUDIO
SECTION 2 VIDEO I.F. & VIDEO
SECTION 3 SYNC & VERTICAL
SECTION 4 HORIZ & POWER
LOW B+ 130 V
HI B+ 265 V
B+ + 610 V
B+ + 235 V
B+ + 230 V
AUDIO B+ (PLATE) 235 V
AUDIO B+ (SCREEN) 230 V
CHASSIS RAILS
HEATER CONNECTIONS USING 120T5
DENOTES PART CHANGE WHEN USING 5C25
UHF ONLY
VHF TUNER
UHF TUNER
VERT. B+ 255 V
15 KV
RED
BLUE
BLACK
ORANGE
YELLOW
GR.
WH.
BLK

Schematic Diagram Courtesy of Westinghouse Electric Corp.